TECHNOLOGY DEPT.

FLIGHT

MAGAZINE

APRIL 1958
50 cents

v. 47 #4

PUBLIC LIBRARY
APR 17 1958
DETROIT

MOONEY MARK 20-A

See page 24

Vertol 44 solves transport problem for oil industry

The petroleum industry has a new tool, the Vertol 44 helicopter, to cut manhours, money and misery out of exploratory drilling at remote sites.

The Vertol 44 is a heavy-duty, universal vehicle that makes the sky a 100 mph highway, almost any clearing a landing field. Gone is the need to hack roads in jungle, swamp and mountains. You may need it for these money-saving missions:

Flying Truck: The Vertol 44 carries more than 2 tons of cargo in tropical areas...transports the entire 175,000 lbs. of a drill rig over a distance of 50 miles out and back, in only 56 flying hours. Its 600 cu. ft. cabin accommodates 50% more cargo than any other commercial helicopter, with no problem of load placement.

Flying Bus: Airlifts up to 19 passengers ... 2 typical field crews ... to jungle derricks or offshore drills ... flies exploration teams to otherwise inaccessible spots.

Flying Crane: Hops rivers, ridges and swampland with sling-loads of pipe, rig superstructure, large pump components or even mobile field offices.

Flying Tractor: Frees mired vehicles, hauls barges, drags sledges. It has even towed a 3,000-ton ship.

For more information on this multi-purpose vehicle for the oil industry, write to: Customer Relations Department

VERTOL Aircraft Corporation

MORTON, PENNSYLVANIA.

FLIGHT
MAGAZINE

for the period checked below.

☐ *3 years for $6.00*

☐ *2 years for $5.00*

☐ *1 year for $3.00*

☐ *Payment enclosed* ☐ *Bill me*

NAME_____

ADDRESS_____

CITY_____

Postal Unit Number_____ STATE_____

So that we may better serve you please indicate your aviation interests or connection with aviation activities:

_____

_____

Above rates for U. S. and possessions.

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

First Class Permit No. 2352 — Dallas, Texas

POSTAGE WILL BE PAID BY—

FLIGHT MAGAZINE

Box 750

DALLAS 21, TEXAS

BUY A LEAR L-2

ONLY sophisticated, lightweight, low-cost autopilot performing all these functions for ALL planes—T-crafts to transports!

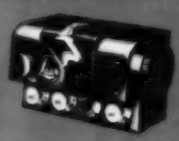
and you buy the best!

CHECK THE LEAR L-2 SUPERIORITY ➧	L-2 AUTO-PILOT	Device A	Device B	Device C	Device D
COMPLETE 3-AXIS CONTROL—AILERONS, ELEVATOR, RUDDER	✔				
PRECISE, LONG-TERM HEADING HOLD, BY DISPLACEMENT (DIRECTIONAL) GYRO	✔		✔		✔
FULLY AUTOMATIC HEADING LOCK—NO NEED TO PRE-SELECT HEADINGS	✔				
INSTANTANEOUS SERVO RESPONSE	✔			✔	✔
PROPORTIONAL SERVO RESPONSE	✔	✔	✔		✔
FOLLOW-UPS—PREVENT OVERSHOOT, PERMIT USE OF HIGH-POWER SERVOS	✔				
AUTOMATIC PITCH TRIM	✔			✔	
ALL-ELECTRIC CONTROLS—NO MECHANICAL ENGAGE-DISENGAGE, NO DELICATE VALVES	✔			✔	
AUTOMATIC ALTITUDE CONTROL AVAILABLE	✔				
AUTOMATIC ILS APPROACH COUPLER AVAILABLE	✔				
THOROUGHLY PROVED—2000 IN USE DURING EIGHT-YEAR PERIOD	✔				
CAA-CERTIFICATED FOR ALL LEADING AIRPLANES, S.E. & TWIN (19 MODELS)	✔				
YAW DAMPING	✔	✔			
VISUAL DIRECTIONAL & ATTITUDE GYRO REFERENCE	✔		✔		✔

This tabulation of essential autopilot features was gathered from manufacturers' specifications, current as of September 15, 1957

LC-60

SINCE 1930 *the finest* FLIGHT EQUIPMENT

LEAR L-2  AUTOPILOT

A REAL 3-axis autopilot—at a new, low price

SEE YOUR NEAREST LEAR DEALER OR WRITE: LEAR INC., LEARCAL DIVISION 3171 SOUTH BUNDY DRIVE, DEPT. F, SANTA MONICA, CALIFORNIA

TULSA MUNICIPAL AIRPORT

The airport that oil built

Pat Combs, *manager, Tulsa Municipal Airport*

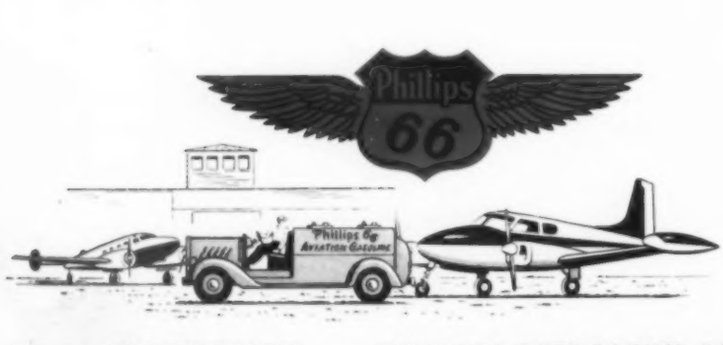
Complete around-the-clock service is available to transient aircraft and the fleet of more than 250 executive-type aircraft based here.

BUSY AIRPORT—The Tulsa Municipal Airport handles 200,000 aircraft movements a year—equivalent to a plane landing or taking off every three minutes. Scheduled airline service is provided by American, Braniff, Central, Continental and TWA.

As Pat Combs, the Tulsa Municipal Airport manager, puts it: "Tulsa has an unusually fine airport facility mainly because Oklahoma oil men recognized the value of air travel 30 years ago."

He also points out the Tulsa airport has always been progressive minded. Today it is one of the few airports in America with a runway long enough to accommodate jet planes that are now on the drawing boards. Its central location also makes it the air crossroads of the nation.

"We use Phillips Aviation Gasoline exclusively," Mr. Combs said, "in fact, we used about 4 million gallons in the year ending July, 1957. We feel that we must provide a top quality, dependable fuel for our customers; that's why it's Phillips all the way."



AV ATION DIVISION • PHILLIPS PETROLEUM COMPANY • BARTLESVILLE, OKLAHOMA

AIR Report
Significant Trends and News

ANOTHER CAA BLOW TO GENERAL AVIATION is Civil Air Regulations Draft Release No. 58-2 tightening requirements for private and commercial pilot certificates. Among other things, it proposes to require five hours of instrument flight instruction for private pilot applicants, raising total flight time requirements for a private pilot certificate from 40 to 50 hours. Even though this instrument instruction would be required, the CAA emphasizes that it will continue to be a violation for flying in less than VFR weather conditions without a valid instrument rating. Industry comment is requested by or before April 18, 1958, addressed to the Civil Aeronautics Board, Bureau of Safety, Washington 25, D. C. The proposal would require private pilots to demonstrate skill in proper use of two-way radio procedures and techniques, to obtain clearance in control zones including obtaining weather traffic and other information in flight and to demonstrate skill in maintaining attitude and directional control solely by reference to instruments.

CESSNA DELIVERED OVER 300 NEW PLANES worth over $5 million in retail value during March, including a record of 215 flyaways in one week at the end of March. The mass flyaway included 140 new 4-place 175-hp. Model 175's. The firm expects 1958 sales to exceed those of 1957 by 25 per cent. Del Roskam, commercial manager, confirmed reports that Cessna will begin delivering 2-place Model 150's this fall and added that Cessna may add still another aircraft model in 1959, apparently referring to a helicopter. The Model 150 will be the seventh model in Cessna's line of planes.

MORE ARMY L-23D SEMINOLE versions of the Beech Twin-Bonanza will be delivered under a new order for $3,000,000 worth of the supercharged light twins.

TWIN-BONANZA INSTALLATION of the Federal tubeless autopilot has been certificated. Other airplanes for which it was already approved include Bonanza, Cessna 172, 180, 182, Skylane and 310, Piper Apache and Aero Commander.

AIRCRAFT INVESTMENT CORPORATION of Ft. Worth, nationally prominent in business aircraft financing since 1941, has a new management with John L. Lewis and Van Zandt Smith as president and vice president Joe B. Hogsett is chairman.

PACIFIC AIR LINES is the new name of Southwest Airways, local service carrier which serves 33 cities in California, Oregon and Nevada.

INTERNATIONAL AIR TRANSPORT ASSOCIATION member airlines are operating 2,900 transports, of which 1,484 have four engines, 1,334 have two engines, 10 have three engines and 29 are single-engine, with 43 helicopters. The totals include 694 Douglas DC-3's, 381 Douglas DC-6's, 209 Douglas DC-7's and 198 Douglas DC-4's for a total of 1,102 Douglas airplanes; 347 Lockheed Constellations and Super Connies, 18 Lockheed Lodestars and Electras; 410 Convairs, 114 Martins, 158 Vickers Viscounts, 50 Boeing Stratocruisers, 22 Bristol Britannias, 2 de Havilland Comets and 46 de Havilland Hersons. The 10 tri-motors are 5 de Havilland Drovers and 5 Junkers JU-52's.

FIRST JET ALOUETTE II HELICOPTER to be operated in America by a commercial service has been purchased by Aetna Helicopter Corp., Etna, California, from Republic Aviation, licensee for Sud Aviation, the French manufacturer.

FAIRCHILD J-83 TURBOJET EN-

FLIGHT MAGAZINE

APRIL, 1958 VOL. 47, No. 4

THIS MONTH'S COVER is an attractive flight view of the new 180-hp. and 180-mph. 4-place Mooney Mark 20-A. It has a useful load of 1,010 lbs. at a 2,453-lb. gross weight and cruises at 180 mph. on 75% of power at 7,500 ft.

—(FLIGHT MAGAZINE Photo.)

Air Report—SIGNIFICANT TRENDS AND NEWS 5

Just Among Ourselves—EDITORIAL COMMENT: STC AGAIN; OUR 25TH YEAR; BUSINESS PLANE DONATION FOR BETTER LAW ENFORCEMENT 17

JetStar Points the Way—PERFORMANCE ACCOMPLISHMENTS BY LOCKHEED'S NEW JET UTILITY TRANSPORT 22

High Speed at 20 Miles Per Gallon—BY GEORGE E. HADDAWAY—THE NEW MOONEY MARK 20-A'S EFFICIENT PERFORMANCE . 24

Jet Success for Primary Training—FIRST AIR FORCE CLASS COMPLETES COURSE IN CESSNA T-37 27

Copter Cranes Eliminate Access Roads—ROTARY AIRLIFT FOR POWER LINE CONSTRUCTION IN MOUNTAINS 28

Aircraft Salesman of the Year—HE SELLS AIRPORTS, TOO—TOWNS ARE BETTER THAN CITIES FOR THIS PEDDLER 30

Business Flying Sales Leaders—ANALYSIS OF 1957 DELIVERIES BY NINE BUSINESS PLANE MANUFACTURERS 32

First Civilian T-Bird—THE JET AGE ARRIVES THE HARD WAY . . 36

General Aviation's Survival—BY CARL J. ALLY—OUR AIRSPACE MUST REMAIN A PUBLIC RESOURCE 37

For Better Radio Service—AIRCRAFT ELECTRONICS ASSOCIATION ASKS RELIEF FROM STC HARDSHIP 38

Airmen's Calendar—COMING EVENTS 42

Neophobia in Aviation—BY WILLIAM P. LEAR—AN ICONOCLAST DEPLORES AVIATION'S RESISTANCE TO CHANGE 46

Flight Magazine Salutes—JIMMY MATTERN, TIME MAGAZINE, HOLY CROSS EPISCOPAL CHURCH, HOUSTON POST, JACKIE COCHRAN, LOCKHEED JETSTAR 54

New Business in the Hangar—NATIONWIDE ROUNDUP OF INTERESTING DEVELOPMENTS IN BUSINESS FLYING 56

GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managing Editor; FRED N. STONES, JR., Business Manager; LOUISE ROBERTSON, Circulation; E. H. PICKERING, Consultant; P.O. Box 750 (2700 N. Haskell Ave.), Dallas, Texas — Telephone TAylor 3-6191.

FLIGHT MAGAZINE, April, 1958, Vol. 47, No. 4. Published Monthly. Publication Office, P. O. Box 750 (2700 N. Haskell Ave.), Dallas. Price 50c single copy. Subscription rates: United States, one year, $3.00; two years, $5.00; three years, $6.00. Established February, 1[illegible]. Entered as second-class matter at the Post Office, Dallas, under the act of March 3, 1879.

Copyright, 1958, by Air Review Publishing Corporation

Get there FAST in a '58 Beechcraft Bonanza

. . . FIRST with fuel injection

'58 BONANZA'S NEW ENGINE WITH FUEL INJECTION

GO FARTHER—FASTER

The four-place *Beechcraft* Bonanza
RANGE – up to 1,060 miles nonstop
SPEED – up to 210 miles per hour

Tomorrow's power — fuel injection — is yours today in the New Beechcraft Bonanza for '58! For the first time in commercial aviation, the magic of fuel injection gives smoother performance and 200 miles per hour cruising speed with the Bonanza's new 250 horsepower engine.

Now you can go faster, get there earlier, get more done than ever before. And you'll enjoy the supreme quiet and comfort of the Bonanza cabin as you watch the miles hurry by.

The '58 Beechcraft Bonanza is at least 30 miles per hour faster than any other single-engine commercial airplane. This rugged and right airplane uses less fuel than your family car, and no airplane is easier to fly!

Beechcraft

For information about the **Bonanza** and the finest leasing and financing plans in aviation, see your Beechcraft distributor or dealer, or write Beech Aircraft Corporation, Wichita 1, Kansas, U. S. A.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

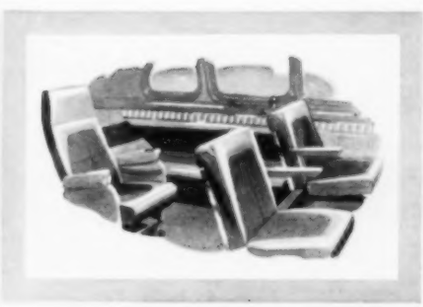
RUGGED AND RIGHT...HIGH STYLED AND HANDSOME

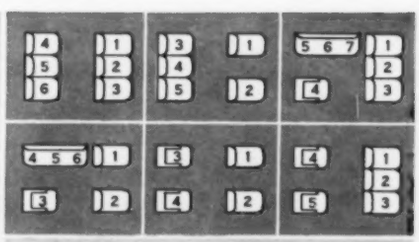
the Beechcraft Twin-Bonanza for '58

You get more of everything in the New Beechcraft Twin-Bonanza for '58 — more power, more speed, more comfort, more beauty, more rugged and right construction — than in any other twin-engine airplane in its field!

With a Twin-Bonanza you save three ways —in time, in money and in energy. From lower maintenance costs to higher resale value, this top performer is not only worth more when you buy it but also worth more while you keep it.

outstanding single-engine performance





your choice of comfort... six luxurious interiors — seating four to seven persons.

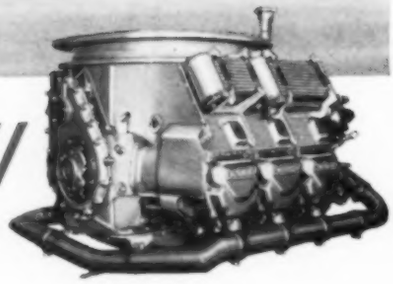
The six-place *Beechcraft* Twin-Bonanza
RANGE – up to 1,650 miles nonstop
SPEED – up to 240 miles per hour

Beechcraft

For information about the **Twin-Bonanza** and the finest leasing and financing plans in aviation, see your Beechcraft distributor or dealer, or write Beech Aircraft Corporation, Wichita 1, Kansas, U. S. A.

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINES

30,335 Feet UP!



...CESSNA YH-41 HELICOPTER Sets New World Record, with Continental Power

When Capt. James E. Bowman of the U. S. Army Aviation Board flew the Cessna YH-41 to a new helicopter world altitude record of 30,335 feet, he added another to the long list of major performance records already held by Continental aircraft power. Capt. Bowman's mark, exceeding by some 3,400 feet the previous helicopter record, underscores again the wisdom of engineering the power to its job. The YH-41's Continental FSO526 engine is designed expressly for helicopter use . . . fan-cooled for efficient cooling in submerged installation . . . supercharged for maximum power. Its horizontal configuration permits the engine to be located forward, bringing the load directly below the rotors—an ideal situation in helicopter loading arrangements. Finally, the interchangeability of many parts with those of other models in the Continental aircraft engine line tends to simplify service, and reduce its costs.

Continental Motors Corporation

AIRCRAFT ENGINE DIVISION

MUSKEGON • MICHIGAN

CONTINENTAL IS ON THE MOVE IN 1958

GINES have been ordered by Canadair, Ltd., for its new CL-41 basic trainers. In the 2,000-lb.-thrust class, the J-83 is 67.5 ins. long and only 1[illegible] ins. in diameter. The CL-41 trainer is a 2-place, side-by-side single-engine craft grossing 6,250 lbs. with a top speed of 400 knots. Span is 36 ft. [illegible] ins., length 31 ft. 11 ins. and height 9 ft. 6 ins.

CIVIL AERONAUTICS ADMINISTRATION is making a survey of 1957 aircraft use. Airplane owners who receive blanks covering the survey are urged to fill them out and send them in because the final tabulation of types and amounts of flying will be of considerable value in planning adequate facilities for general aviation aircraft as well as provide a source of valuable information for all companies interested in market data.

MODIFIED AND PERFECTED WILCOX 701A ADF'S are being exchanged at no charge for all of first year's production of the 701A. Owners who have not arranged for the exchange should contact their nearest Wilcox dealer.

A NEW WARRANTY SERVICE FOR NARCO AIRCRAFT COMMUNICATIONS AND NAVIGATION equipment provides for fast, nationwide handling of any warranty claims with a clear-cut procedure for Narco purchasers at over 80 warranty service agencies. The warranty provides purchasers of new Narco equipment with a bench test and correction of malfunction without charge for 90 days.

SKYMOTIVE, O'Hare Field, Chicago, has put Richard E. Cross in charge of all aircraft repair, overhaul, modification and electronics installation, and H. M. Bradbury is now director of engineering and quality control.

LARRY HUNT, Air Oasis Company, Long Beach, California, leading Cessna distributor for 1957 with 167 airplanes delivered, reports a substantial increase is in the mill for 1958 with 91 airplanes sold in the first quarter. Air Oasis has on order thirty-five 172's, twenty-two 175's, forty 180's and ten 310's to be delivered the first six months. They grossed over $3.5 million in 1957 and should sell as many airplanes during the first half of 1958 as they sold during the entire year of 1957. Hunt employs 3 retail salesmen and has 15 dealers. He is expanding facilities on the Long Beach Airport which will soon be accessible to metropolitan Los Angeles by a new freeway that will put Hollywood within 20 minutes driving time.

CLYDE PANGBORN, 63, who flew non-stop across the Pacific from Tokyo to Wenatchee, Washington, for a record in 1931, died last month in New York. Pangborn was a pioneer airman and colorful barnstormer.

ORENDA

IROQUOIS

BENDIX* IGNITION SYSTEMS—FOR THE BEST IN JETS

Another great jet engine has incorporated an ignition system designed and built by Scintilla Division of Bendix Aviation Corporation. Such a system, with the plus features that are a result of years of ignition design experience, is in use on the powerful Iroquois jet engine, product of Orenda Engines Limited, of Malton, Canada.

Selected as the power plant for the Avro Arrow, the Iroquois is a powerful jet engine of very advanced design developing over 20,000 pounds' thrust. Arrangements were recently completed between Orenda and Curtiss-Wright to permit manufacture of the Iroquois engine in the United States.

We are proud that Orenda chose a Bendix-designed jet ignition system for the Iroquois. Serviceability, reliability, and extended overhaul life are inherent features of all jet ignition systems built by Scintilla Division of Bendix Aviation Corporation.

Canadian Affiliate: Aviation Electric Ltd., 200 Laurentien Blvd., Montreal 9, Quebec.

*TRADEMARK

Scintilla Division
SIDNEY, NEW YORK

Bendix
AVIATION CORPORATION

THE BELL.. WORLD'S LEADING HELICOPTER

..in O.D.'s or in Civies

In civilian life as well as the military, the Bell is the world's most widely used helicopter. Bell has produced more helicopters than any other company in the world.. sold more commercial helicopters than any other manufacturer.

Just this January, Bell produced its 2,000th Model 47 helicopter .. the series that includes the famous Army Sioux. Just as the Sioux distinguished itself on the battle front, the Bell 47 G-2 has distinguished itself on the business front. Today, there are over 700 Bell helicopters in commercial use in 52 countries of the world.. more Bells than all other helicopters combined.

Because the Bell has proven dependability based on more than 2,500,000 hours of flying experience.. because it has the most advanced operational features.. the Bell is the pacesetter in the helicopter field. And because it is volume-produced, it has the lowest initial cost.. lowest maintenance cost.. making Bell the *best buy* in the field!

There is a Bell model to fit *your* needs.. and there are three convenient ways to *try* the Bell.. through independent Charter Service, Bell's own Lease/Purchase Plan or Outright Purchase. For complete information, write Department 12D, Bell Helicopter Corporation, Fort Worth, Texas.

Burlington
Tennessee Valley Authority
Chicago Helicopters Airways, Inc.
DOUGLAS AIRCRAFT COMPANY, INC.
CONOCO
amp
NEW YORK CITY POLICE DEPARTMENT
RMC
ANACONDA
from mine to consumer
PORT OF NEW YORK AUTHORITY
Northrop Aircraft, Inc.
ROGER SHERMAN TRANSFER CO.
New York Trap Rock Corporation
New York Airways, Inc.
Mobil
Motorola, Inc.
FROUGE Construction Co., Inc.

Watch "WHIRLYBIRDS" *on TV .. consult your local paper for time and station.*

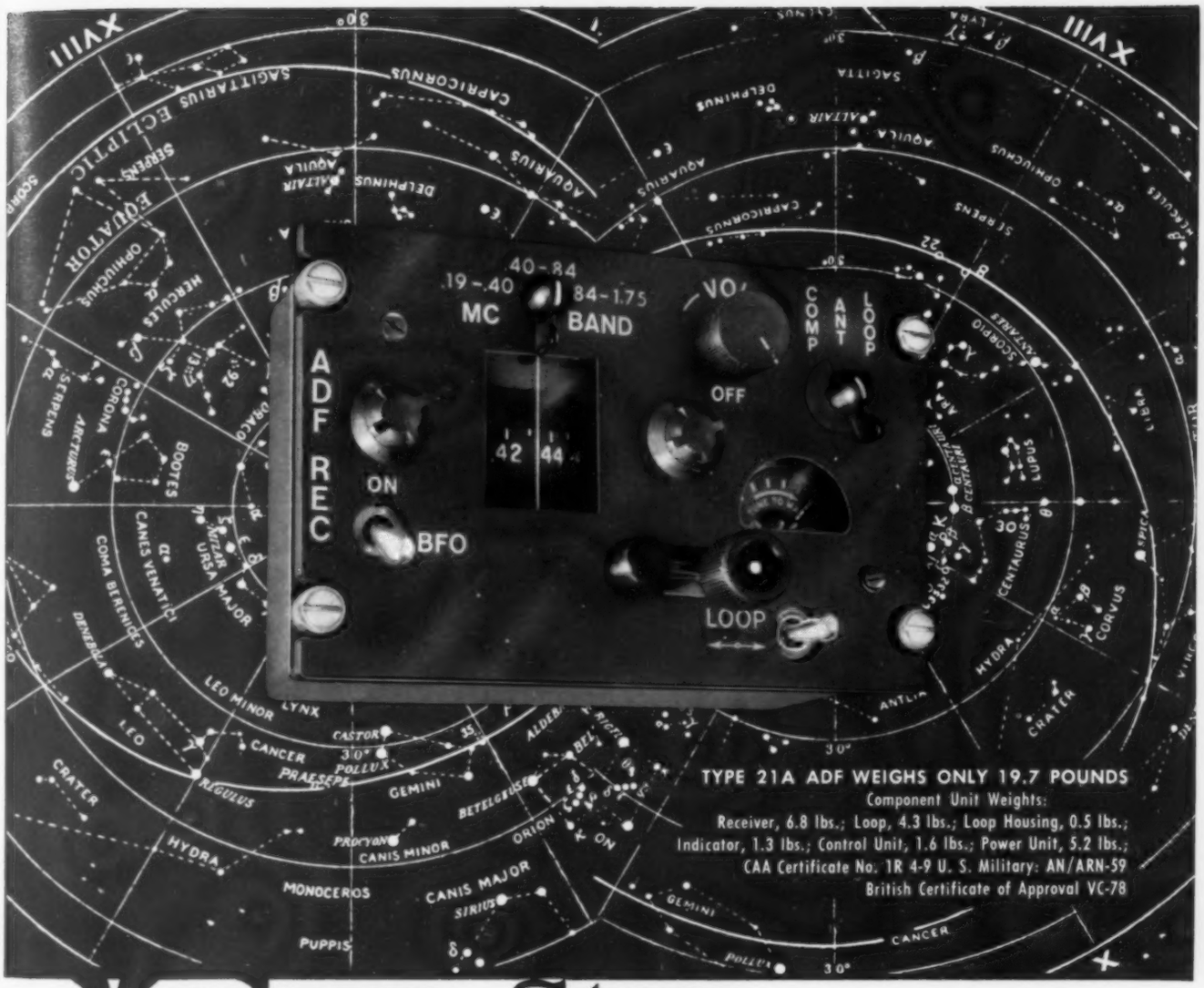
BELL Helicopter CORPORATION

BELL is *First Choice* With Many of America's Best-Known Companies

These are just a few of the top names that are discovering hundreds of cost-cutting uses for the Bell.

SUBSIDIARY OF BELL AIRCRAFT CORPORATION

FORT WORTH, TEXAS



Modern Star

For World-Wide Aircraft Navigation

ARC's TYPE 21A AUTOMATIC DIRECTION FINDER

Because it can be tuned to some 60,000 transmitters, spread all over the world, the ADF is a widely used navigation aid. Important news about the ADF, however, is that ARC has engineered this basic instrument down to less than 20 pounds in weight, with a comparable saving of space.

Now pilots enjoy the advantages of dual installations of this compact miniaturized equipment in tolerable weight and space requirements.

The ARC Type 21A ADF is built to today's more critical speed and environmental demands. It has hermetic sealing of vital components, such as the entire loop assembly. It covers all frequencies from 190 kc to 1750 kc . . . operates on only 2.8 amps at 27.5 volts dc input or equal power at 13.5 volts. A significant feature is the extremely low loop drag — only two inches outside the aircraft skin.

Ask your dealer for detailed literature.

Dependable Airborne Electronic Equipment Since 1928

Aircraft Radio Corporation BOONTON, N. J.

OMN[illegible]C RECEIVERS • MINIATURIZED AUTOMATIC DIRECTION FINDERS • COURSE DIRECTORS • LF RECEIVERS AND LOOP DIRECTION FINDERS
UHF [illegible] VHF RECEIVERS AND TRANSMITTERS (5 TO 360 CHANNELS) • INTERPHONE AMPLIFIERS • HIGH POWERED CABIN AUDIO AMPLIFIERS
10-C[illegible]NEL ISOLATION AMPLIFIERS • OMNIRANGE SIGNAL GENERATORS AND STANDARD COURSE CHECKERS • 900-2100 MC SIGNAL GENERATORS

30 YEARS OF ACHIEVEMENT 1928 ARC 1958 IN AIRBORNE ELECTRONICS

. . . Map your stops at the Humble sign

HUMBLE *aviation gasolines and lubricants are available at these airports in the eastern part of Texas:*

Beaumont-Port Arthur — Jefferson County Airport
Beaumont — Beaumont Municipal Airport
Conroe — Montgomery County Airport
Greenville — Majors Field
Longview — Gregg County Airport
Nacogdoches — Del Rentzel Airport
Orange — Brown Airport
Terrell — Wallace Field

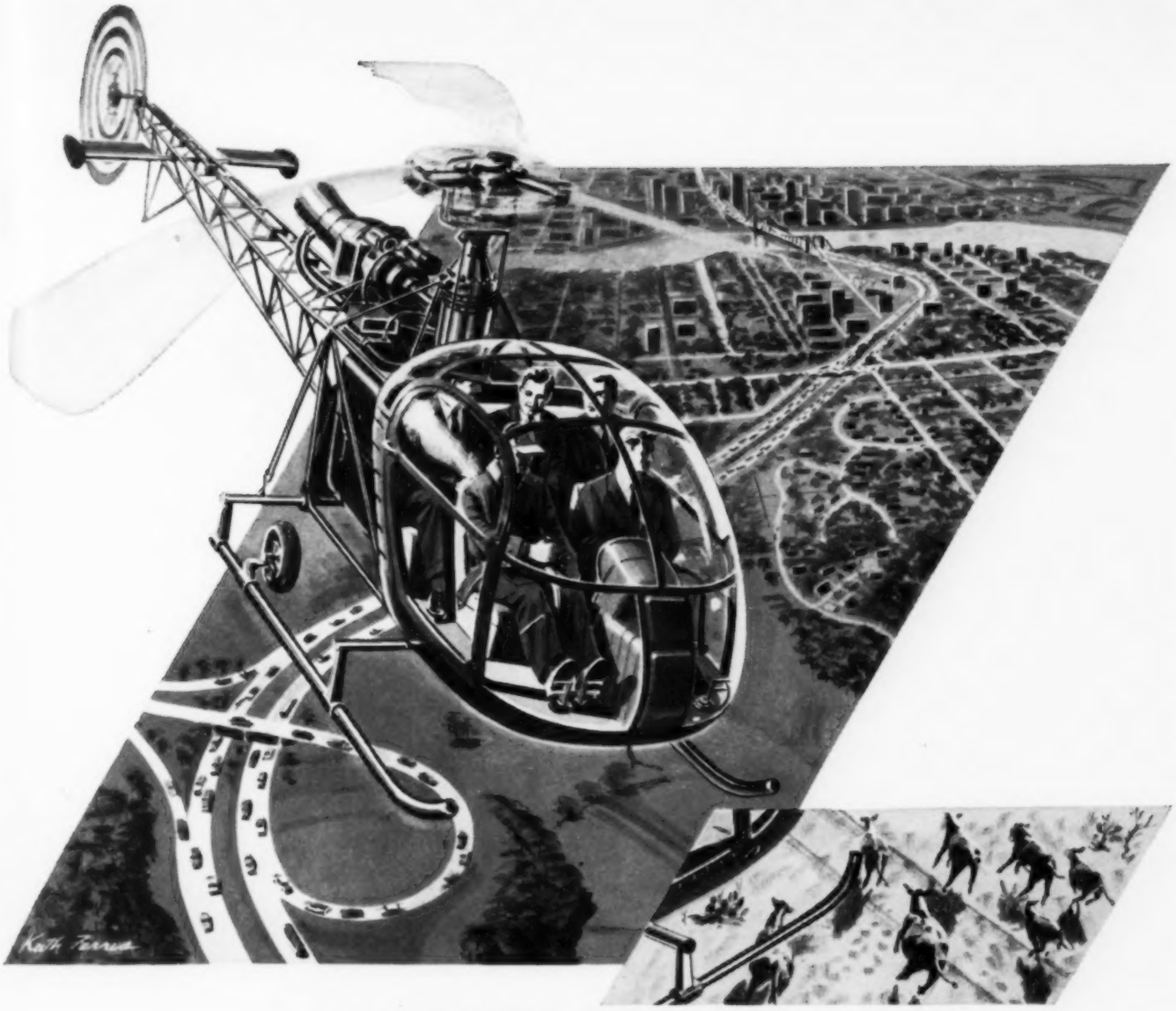
HUMBLE

AVIATION PRODUCTS

HUMBLE OIL & REFINING CO.

Humble aviation gasolines are right for every airplane! The most modern refining procedures give you a carefully balanced fuel for top-flight power and performance—a gasoline that *maintains* full knock ratings.

Use a Humble aviation gasoline for best performance from your plane. And when you stop to refuel at the Humble sign, note the careful, thorough service you get—the same superior service that your car always gets at your favorite Humble Service Station.



ALOUETTE DEPENDABILITY

BRINGS NEW HORIZONS TO HELICOPTER OPERATION

- *Instant take off . . .*
- *Simplified controls*
- *Instantaneous power response*
- *Low maintenance time to flight time*
- *Top performance in extreme hot or cold weather*

The Alouette, designed by Sud Aviation, is the world's first production turbine-powered helicopter. Its almost unbelievable versatility makes it ideal for a broad range of operations heretofore considered outside helicopter capabilities. Republic Aviation Corporation . . . recognized for its alertness and foresight for more than a quarter century . . . is now selling . . . "tomorrow's design today"!

Contact Helicopter Division for literature and demonstration—EARLY DELIVERY.

REPUBLIC AVIATION CORPORATION

HELICOPTER DIVISION

FARMINGDALE, LONG ISLAND, N. Y.

the TACTAIR® automatic pilot is now the no. 1 business aircraft autopilot

In less than two years, the TACTAIR pneumatically-operated autopilot has become, by far, the most popular automatic pilot for business aircraft. In the past year, sales and installations of the TACTAIR autopilot have far outstripped sales of any other autopilot on the market today. Major manufacturers of business aircraft have selected the TACTAIR as optional, factory-installed equipment. Seven reasons explain why: ● ● ❶ The TACTAIR provides the pilot with the most help, operates with uncanny smoothness. ● ● ❷ The TACTAIR's Course Selector and Heading Lock system is unique, lets you "dial in" any course desired for en route flying, instrument approaches, radar vectors —with no confusing zero-heading on the DG. ● ● ❸ The TACTAIR's pneumatic operation, completely non-electronic, adds no load to the aircraft's electric system. ● ● ❹ The basic simplicity of the TACTAIR's design concept and installation, with no complicated feed-back system, greatly reduces probability of malfunction. ● ● ❺ The TACTAIR cannot burn out or be damaged by over-riding controls. ● ● ❻ The TACTAIR's light weight (less than 8 pounds) poses no weight problem. ● ● ❼ The TACTAIR is backed by a nation-wide network of factory-approved service agencies.

For more details on the TACTAIR, see your TACTAIR distributor or write for brochure.

TACTAIR® INCORPORATED AUTOPILOT DIVISION | AIRCRAFT PRODUCTS CO. BRIDGEPORT, PENNSYLVANIA

For 18 Years Specialists in Precision Aircraft Pneumatic and Hydraulic Controls

High comfort is now a business-twin reality! No more uncomfortable oxygen masks for high-altitude flying. Now—in the 4 to 6-place Alti-Cruiser—you fly at the altitude of your choice, above the weather, and enjoy the comfortable cabin pressure of an airplane flying thousands of feet lower.

No longer do you have to choose between a time-wasting flight *around* bad weather and an uncomfortable flight *through* it. In your Alti-Cruiser you fly *over* the weather to your destination—in airline comfort.

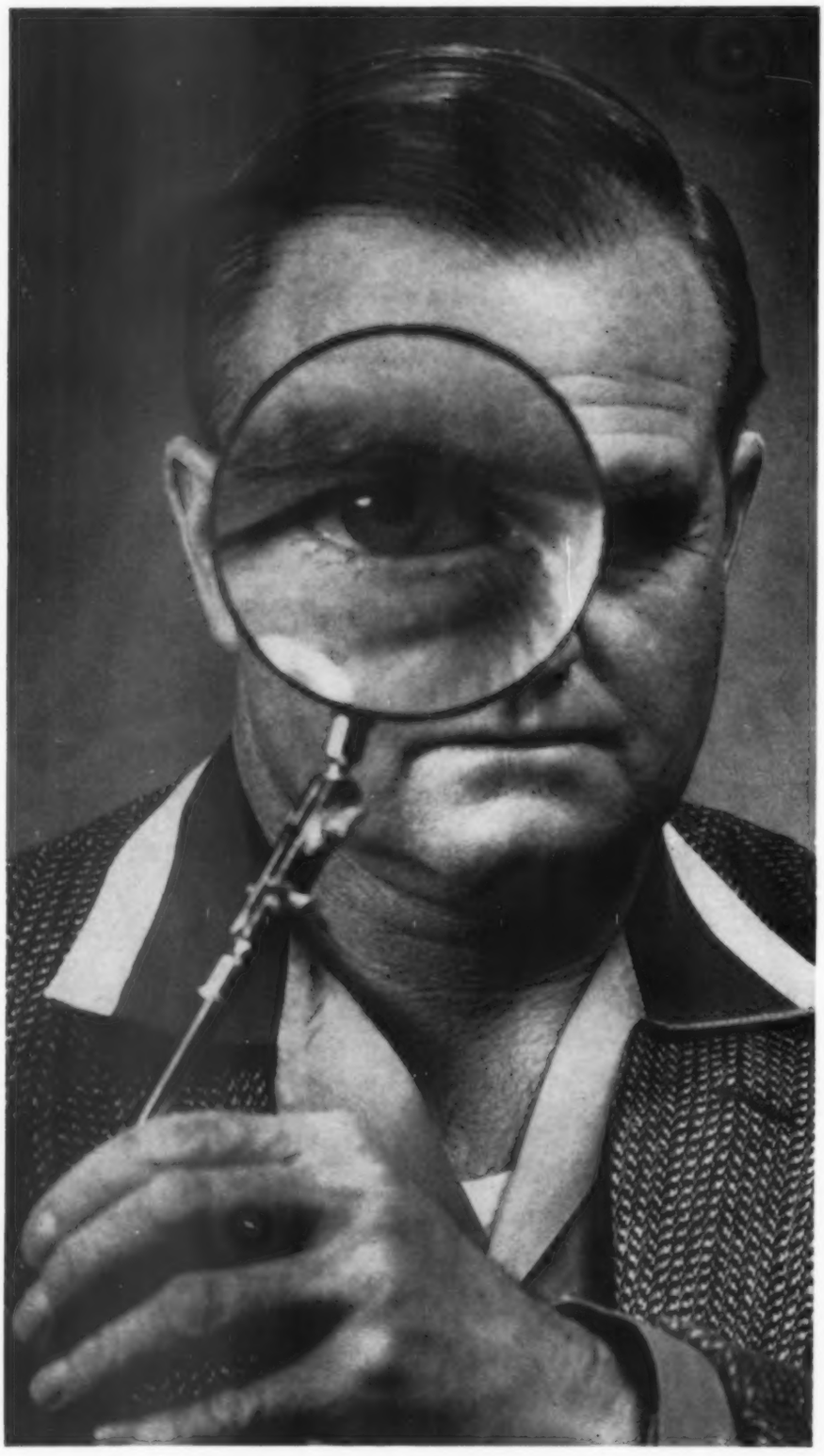
In the air or on the ground you enjoy full cabin air-conditioning, unavailable in any other executive twin. You remain fresh, ready for productive action at all times—and you always arrive *on* time.

Get the complete story. Send today for your copy of the fact-filled, illustrated brochure.

AERO DESIGN & ENGINEERING CO • TULAKES AIRPORT • P.O. BOX 118 • BETHANY, OKLAHOMA

NO HOCUS-FOCUS, WHETHER —

Venus de Milo or Lockheed Airplane!



THROUGH THE LOOKING GLASS WITH A KEEN PRACTICED EYE

To be fully understood and appreciated, a fine airplane — like a fine woman — must be seen over a long period of time, observed with a keen and experienced eye.

In the past 25 years, Southwest Airmotive Co. has kept a sharp and continuous focus on Lockheed-built business airplanes, from the Orions and Vegas, through the 10's, 12's, 14's, Lodestars and PV-1's, and their blood-brothers, the Learstars and Super Venturas.

Result: SAC knows Lockheeds like no other maintenance specialist in America. This fact is borne-out by an almost-endless list of Southwest-originated Lockheed modifications and improvements, created by such craftsmen as Aircraft Div. Mgr. W. J. Connell — seen here through the looking glass.

As examples, today we set the pace with short stack, Janitrol and South Wind heater and higher-amp generator installations, and with flat rates for 100-hr. and annual inspections; engine removal and installation; and overhaul of engines, accessories, instruments, and propellers. Write the Service Sales Manager for details.

SAC has an eye on Lockheeds — keep an eye on SAC!

Southwest Airmotive Co.

LOVE FIELD, DALLAS

DISTRIBUTION DIVISIONS: KANSAS CITY • DENVER

1932 —— A QUARTER CENTURY OF LEADERSHIP —— 1958

Just among ourselves

STC Again

THE aviation radio and electronics shops are beginning to feel the pinch experienced earlier by the airframe shops from CAA's interpretation of supplemental type certification regulations.

This fact came to light last month during the 1958 annual convention of the Aviation Electronics Association, made up of the nation's top radio repair and installation institutions. Formed last year in Minneapolis, the AEA is well on the way to success as a full-fledged, effective aviation trade organization.

In 1957 the aero repair shops doing the majority of airframe modification work joined forces in an industry committee to seek relief from the inordinate delays and financial losses stemming from CAA's interpretation of relatively new supplemental type certification regulations. This industry committee carefully documented their petition for relief and went to Washington, where they received the usual Washington double-talk. The committee enlisted the interest of the General Aviation Facilities Planning Group when it spent a day with high CAA officials discussing current civil aviation problems. The STC hardships were then again pointed out to CAA.

The Administrator of Civil Aeronautics gave some encouragement to the industry when he mentioned the problem in a speech before the National Business Aircraft Association at Denver in October. That was six months ago and no relief is in sight. A field check by FLIGHT MAGAZINE reveals that matters are going from bad to worse and that many shops are headed for real financial trouble unless STC requirements are modified immediately. It is clear that CAA has turned its back on the industry's reasonable petition for relief.

The inconceivable thing about the whole mess is the fact we had a practical and workable method of making major and minor changes and installing new equipment in aircraft before the STC regulation was put on the books. Local CAA inspectors were perfectly capable of handling most of the modifications and installations, were well acquainted with the technical know-how of the shops and personnel in their areas and had an intimate knowledge of who turned out good work and who were the bootleggers. This old intimate system has been destroyed. Nearly every change or installation now requires costly engineering, results in long delays (because CAA says it doesn't have enough engineers to process the mounting paper work) and grounded airplanes.

The industry did not complain about the STC program going in. It does not demand the abolition of STC requirements. If properly interpreted in the field, the STC program could be most valuable procedure for involved changes and possibly contribute to aviation safety, particularly in area of major structural changes.

The CAA's refusal to budge now

Our 25th Year

THIS month marks the silver anniversary of this publication. We'd like to celebrate the occasion by simply but warmly expressing our genuine thanks to our many friends, subscribers and advertisers who made possible whatever measure of success this journal has achieved over the quarter century now gone.

Twenty-five years actually is not a long time and does not represent a hoary old age. Nor does it demand any special mantle for services rendered or goals attained. True, we've observed and chronicled a lot of aviation history in those fast-moving years. But modesty takes over when we remember and acknowledge the grand gang of oldtimers still around us who've been in the flying game for thirty, forty and some even fifty years. They have something to boast about! Our twenty-five years seem a bit puny in comparison with their long records and experience.

In retrospect we won't ever forget the modest beginning, the hard days, the hungry days, the mounting printing bills and how every edition was a supreme accomplishment. We won't soon forget the long nights, working over the subscription galleys, pasting on the labels and hauling the latest edition down to the post office. Nor the times the bankers jumped into their vaults and slammed the door upon the mention of airplanes or aviation. In the early 1930's anyone connected with aviation was considered slightly off his trolley. The barnstormers were passing out of the picture. That colorful era ended then; but before they passed on they had sown the seeds of commercial aviation that began to blossom in the late thirties. They alone kept it alive after World War I. They had a lot of influence on us in those early days and to the old pilots we perhaps owe our greatest debt and gratitude.

Typical of their encouragement and support was that given by our first paid subscriber, R. L. Bowen, one of the nation's first business pilots, president of Community Public Service Company, and Charlie Curry, an aerial survey pilot, who later went with American Airlines (then it was American Airways) and became a senior skipper of that great company. And the first partner, A. T. Barrett, Jr., who starved to death as long as he could and had to get a paying job to afford marriage! And Colonel Bill Ocker of Brooks Field, God rest his pioneering soul, the daddy of instrument flying who was hung, drawn and quartered for preaching the gospel that the instruments were telling the truth and the seat of the pants was lying. Those were the days!

In retrospect we have come to the conclusion that despite all the progress and the accomplished fact that the airplane finally has arrived, the people and the challenges are about the same. There's just more of us and more work to do. The real reward on which there can be placed no measure of value is probably in having had a front-row seat to the greatest show in all of human progress. And it's still going on!

gives credence to the belief we've simply got another case of empire building within the CAA. This time it's a small clique of engineers who care nothing about the economic implications of their empire building, which looks like an attempt to "make-work" in order to justify more CAA engineers to handle all the paper work paid for by the industry.

It would be a different matter if experience could show that STC was put in to simplify procedures or to correct malpractices which might, for example, be contributing to accidents. But the accidents in non-scheduled aviation are not coming from poor workmanship or improper engineering. Our disgraceful fatality rate is not rooted in the improvement, maintenance and modernization of our airplanes by the scores of competent shops across the land. So instead of working on the real root causes of our bad accident incidence in non-scheduled flying, the CAA sticks its head in the sand and goes out on tangents like the STC fiasco to wreck the industry. It doesn't make sense and the industry is not going to sit still any longer waiting for reasonable treatment.

It is indeed encouraging that the Aviation Electronics Association is joining the fight for reasonable treatment. Like the airframe people, they know that a CAA-approved repair station means nothing any more, that having approval often is a liability rather than an asset. They have learned that reputation and experience no longer mean anything to the CAA; that everyone is a crook or an incompetent until expensive engineering proves them legitimate. They realize as do the old airplane fixers that we've got to return immediately to the philosophy that the industry has grown up in the past twenty years and is perfectly capable of running its own affairs, protecting the public and prospering from quality of workmanship that doesn't compromise with dollars or human lives, which in aviation is all the same thing.

It's time to act. Airplanes are grounded, shops are not paid for work already done but not STC'd, owners are disgusted with the long delays and increased costs from silly engineering. The facts in the STC matter are well known in Washington and in the field. It is inconceivable that the CAA can go on another thirty days without coming off its high horse and ordering immediate relief or at least take a second look at what their interpretation of STC requirements is doing to the industry.

Business Plane Donation For Better Law Enforcement

THANKS to a Texas oil man's combination of air-mindedness and interest in public affairs, law enforcement in the Lone Star State will be more effective and his formula can be patterned by other businessmen in making aircraft advantages available to local public safety agencies all over the country.

The Texan, Colonel D. Harold Byrd, donated a Twin Beech to the Texas Department of Public Safety, which already had two single-engine planes and a small twin but needed the Beech to help spread its limited but highly trained personnel more efficiently over the large state on a 24-hour basis. The Department's vaunted Texas Rangers, for example, number only 51 men in their ranks but faster transportation is a more practical answer to their needs than the hiring of more men — the requirements are so rigid it takes years for a rookie to acquire a Ranger's extraordinary skills; long and colorful records are replete with examples of how single Rangers have accomplished assignments too tough for entire local police staffs. That's why Rancher C. T. McLaughlin, citizen chairman of the Public Safety Department, who has his own Beech Super 18, and Colonel Homer Garrison, head of the Department, were glad to accept the Beech Twin from Byrd, who was one of the first men in the oil industry to use a private plane.

Successful flying businessmen, more than anybody, know the advantages of private aircraft for increased efficiency. Public safety departments all over America, probably more than any other local agencies, need these advantages. As Texan Harold Byrd has demonstrated, it's high time the two got together. Where possible, let businessmen insist on aircraft purchases by public safety departments. Where this is impossible, let businessmen contribute aircraft to these departments — even used planes and helicopters will do. Where this, too, is impractical, let businessmen donate the part-time use of their aircraft to public safety activities. The need is pressing — any alert public safety department head will confirm this to those who may not be aware of it. Donor Byrd knows it and expresses his feelings like this: "Never in the history of human endeavor have so many owed so much to so few — Winston Churchill said it of the RAF Fighter Command in the Battle of Britain and I say it of the Texas Rangers."

Oilman D. Harold Byrd (left, in front of plane) hands title for Beech Twin he donated to Texas Department of Public Safety to the Department's head, Colonel Homer Garrison, while the Department's chairman, Rancher C. T. McLaughlin, looks on. They are shown at right in the Beech.

—(FLIGHT MAGAZINE Photos.)

the right formula...the right airplane for modern transportation

1 h.p. = 1 m.p.h. + (economy + speed)

the Mooney MARK 20

The new and improved 1958 Mark 20 with its advanced design and laminar flow wing is the world's most efficient airplane. It's a dream come true — for each engine h.p. you travel one m.p.h. or more, in safety and comfort!

- Mark 20A with 180 h.p. Lycoming engine — cruise at 180 m.p.h.
- Mark 20 with 150 h.p. Lycoming engine — cruise at 165 m.p.h.

Prove to yourself why the Mark 20 is the **right** airplane for modern day, fast, inexpensive transportation. Compare **all** the Mark 20's quality-plus features. See and fly the Mark 20 today. Caution: Be prepared to want one!

For information and name of your distributor write:

Mooney Aircraft, Inc. • ***Kerrville, Texas***

One in a series on how business aircraft are kept in top flight condition – and why these fleets, like the major airlines, prefer

CHAMPION SPARK PLUGS

Herbert O. Fisher

Noted aviation authority reports on **OHIO OIL'S**

Winged Couriers of Industry

by HERB FISHER, *international aviation authority, veteran test pilot, author*

Backbone of civil aviation's growth to 100,000 aircraft – a 400 per cent increase in 15 years – is "strictly business... business before pleasure."

Of civil aviation's *private* flying fleet alone, which is 44 times larger than the 1,500-plane scheduled airline fleet, some 25,000 aircraft are "flying conference rooms," *winged couriers of industry.*

Down to earth . . . Mike Murphy, Co-pilot Dick Owens (l/r) chart route to Guatemala.

Business flying is big business, expanding at a rate far outstripping that of commercial and pleasure flying. With one factory in three located in a small town off commercial air routes, business fleets are more than paying their way.

I've found few firms with business fleets and aviation departments comparable in size, scope and efficiency to that of the Ohio Oil Company.

This company – with world-wide operations embracing exploration and production, supply and transportation, refining and marketing – is a natural for business flying. The 14th largest domestic crude oil producer among 12,000 concerns, Ohio Oil must integrate by fast flight a scattered domestic operation ranging from Texas to Canada, and a foreign exploration program stretching to remote corners of the earth.

Rugged duty . . . Champion-equipped Tri-Pacer flies Illinois pipeline patrol.

Ohio Oil operates 23 aircraft, has 32 full-time pilots and co-pilots, nine skilled mechanics, and owns and maintains a modern airport at Findlay, Ohio, equipped to handle all types of aircraft; runways alone compare with the longest in the U.S.

Heading the company's 48 member Aviation Department is an old friend of mine from barnstorming days – one Michael Murphy, dean of old-time stunt men, a decorated precision pilot and an aviation legend. Mike set up Ohio Oil's Aviation Department in 1945, after an Air Force career as lieutenant colonel in charge of glider fleets for General "Hap" Arnold.

Few U.S. corporations own and operate an airport with such *complete* hangar and shop facilities for maintenance, overhaul, and even conversion of its varied aircraft, as does Ohio Oil. And in every detail, this operation is efficiency at its best.

"Management wants nothing but the very finest care given their planes aloft as well as on the ground," Mike told me. "We're directed to use only the very best in parts and equipment – thoroughly tested by us to meet our top standards for maximum safe performance in all operating extremes.

"That's why we've used Champion Spark Plugs, for example, for 10 years. We've found them tops in performance and dependability."

Ohio Oil aircraft, too, are selected for specific jobs – Super Ventura, DC-3's and C-47's for long hauls to far-flung points not serviced by

Days away, once . . . Remote oil field is but few hours from Findlay headquarters via Champion-fired Bonanza business craft.

In good hands . . . Skilled technician assures peak performance of Pratt & Whitney R-985 Super Beech engine with dependable Champions.

Top men, top assignment, top equipment . . . "Amazing what the *right* spark plug can do," Mike Murphy (c) tells Ass't Aviation Mgr. Earl Bauer, Ventura Pilot Dick Yeakam (l/r), and Co-pilot-Mechanic Mac Powell (rear). Ohio Oil experimented with other spark plugs through the years, always returned to Champions.

airlines, or for large groups wishing to hold conferences en route; Piper Tri-Pacers for pipeline patrol; Twin Beeches, a Twin Bonanza, a Travelair and Bonanzas for heavier loads and feeder service to airline terminals; DeHavilland Beavers and Cessnas for general duty.

"With our world-wide operation, traveling itself could be a full-time occupation for many of our personnel if we didn't have our own air fleet," Mike said. "Management indicates that, without a business fleet, we would need considerably more high-salaried specialists and executives – and these are hard to come by. It's difficult to estimate the monetary value of increased production hours resulting from tremendously reduced travel hours."

A case in point: For Ohio Oil executives to get in one day's work at the company's Robinson, Ill., refinery, two days are spent in round-trip land travel. Champion-fired business aircraft, however, provide three-hour round-trip commuter service, enabling one man to compress three days in one.

"We're not competing with the airlines," Mike said. "Actually, we bring them to our front door. We shuttle our executives to commercial terminals when they're en route to destinations served by airlines."

New feathers for old eagles . . . Veteran pilots like Tom McFarland get constant refresher training in new equipment and procedures. Link operator is Pilot Dick Carpenter.

Aerial pipeline patrol certainly pays for itself, too, Mike told me. A Tri-Pacer pilot covers in one day 550 miles of Ohio Oil's 3,300-mile pipeline system. Walking inspectors cover but 10 miles a day.

This daily flying at extremely low altitudes calls for intense pilot concentration – split-second attention to various details of plane performance, terrain, turbulence. The pilot can take no chances of engine failure. Such rugged duty makes it mandatory, then, that the vital heart of the pipeline patrol plane be fired to life day after day by Champions.

Ohio Oil maintains small airports in remote exploration areas of South America and Africa. At Ohio Oil's Oasis Oil Co. of Libya, for example, a C-47, Beaver and Cessna carry supplies and personnel into regions previously accessible only by many days of camel caravan.

Here, too, Champions assure safe flight over trackless wilds, where engine trouble far from an airport might mean the end . . .

At Findlay headquarters I saw flight crews – all in white dress shirts–handling passenger baggage,

Fast, flexible . . . Egyptian C-47 and helicopter help solve time, distance problems—mandatory for integrating and supplying Ohio Oil's far-flung foreign operations.

gassing planes, doing administrative work, getting weather reports, mapping precise routes over back country, doing custodial work in plane interiors, checking and ordering replacement parts, performing as all-around mechanics, designing their own executive plane interior equipment, sewing fabric and doing carpentry on interior woodwork installations – literally doing *everything* themselves–plus flying.

"You'd have to screen thousands of pilots and mechanics to find any as qualified as ours," Mike told me. "Our men must be specialists in not one field but several."

It's a real tribute to Mike's management and experience – along with the performance of pilots, maintenance crews and aircraft equipment, such as Champions–for Ohio Oil to have been honored by the N.B.A.A. for a perfect safety record . . . 33,000,000 accident-free passenger miles.

CHAMPION SPARK PLUG CO.
TOLEDO 1, OHIO

Climbing above the overcast, the 12-place Lockheed JetStar heads for efficient cruising altitudes above 30,000 ft. It averaged 557 mph. on a non-stop hop of about 2,000 miles between California and Georgia.
—(Lockheed Photo.)

JetStar Points The Way

AVIATION'S first and only jet-powered small transport, the fast Lockheed JetStar, is living up to the expectations of its builders with performance which will revolutionize small utility transport operations.

Its latest accomplishment was marked up last month when the JetStar flew non-stop approximately 2,000 miles from California across the continent to Marietta, Georgia, in only 3 hours 29 minutes at an average speed of 557 mph. That's a new unofficial transcontinental speed record for transport-type aircraft. With piston-engine transports, it compares with the previous best hop along the same route by a Delta Air Lines DC-7A, which took 5 hrs. 15 mins. for the trip.

Lockheed's senior vice president, Hall Hibbard, and its vice president in charge of engineering and research, C. L. Johnson, were passengers on the JetStar's trip, which was made at altitudes of 45,000-46,000 ft. and above the weather. Cabin altitude was 8,000 ft. Fuel reserve on landing was 1,650 lbs., or over 15% of the total fuel carried.

The trip was a dramatic demonstration to open a cross-country demonstration tour for the JetStar during April. The 20-day trip will start in Washington and will visit military air

Here's the JetStar landing at Marietta, Georgia, after its hop from California in 3 hrs. 29 mins. Note how location of engines enables wing to protect air intakes from runway debris.
—(Lockheed Photo.)

JetStar will attract crowds on 20-day nationwide tour of military bases in April. It grosses about 28,000 lbs., has span of 53 ft. 8 ins., length of 58 ft. 10 ins. and height of 20 ft. 6 ins. Total thrust is about 10,000 lbs. for several engine packages—two Curtiss-Wright TJ37's or four of either General Electric J-85 and Fairchild J-83 jets. Normal fuel capacity is 1,640 gals.
—(Lockheed Photo.)

bases so that Air Force, Navy, Army, Marine and Coast Guard officers can see the airplane and fly in it. It was developed with Lockheed funds for off-the-shelf sale to the military as a utility transport-trainer. Lockheed confidently expects a military order from an evaluation now under way. Any orders for commercial versions of the JetStar will await military production — Lockheed says it has received numerous inquiries from commercial prospects and has assigned delivery priorities to them.

The JetStar cabin seats 10 persons as standard in addition to a crew of two in the cockpit. It has lavatory, galley and baggage compartments. Pressure differential inside the cabin is 8.9 lbs. per sq. in.

The prototype, which features two jet engines mounted near the tail, has a total of about 10,000 lbs. of thrust. It is also available with four smaller jets, two on each side of the rear fuselage, having a total thrust of about 10,000 lbs. Curtiss-Wright TJ37 engines are on the prototype; General Electric J-85 and Fairchild J-83 jets would make up the 4-engine packages. The rearward mounting of jet engines on the side of the fuselage is widely referred to as "Caravelle style" in recognition of the success of this mounting on Sud Aviation's famous Caravelle medium-size airliner. But Lockheed actually originated the idea on proposals for jet transports which were never built.

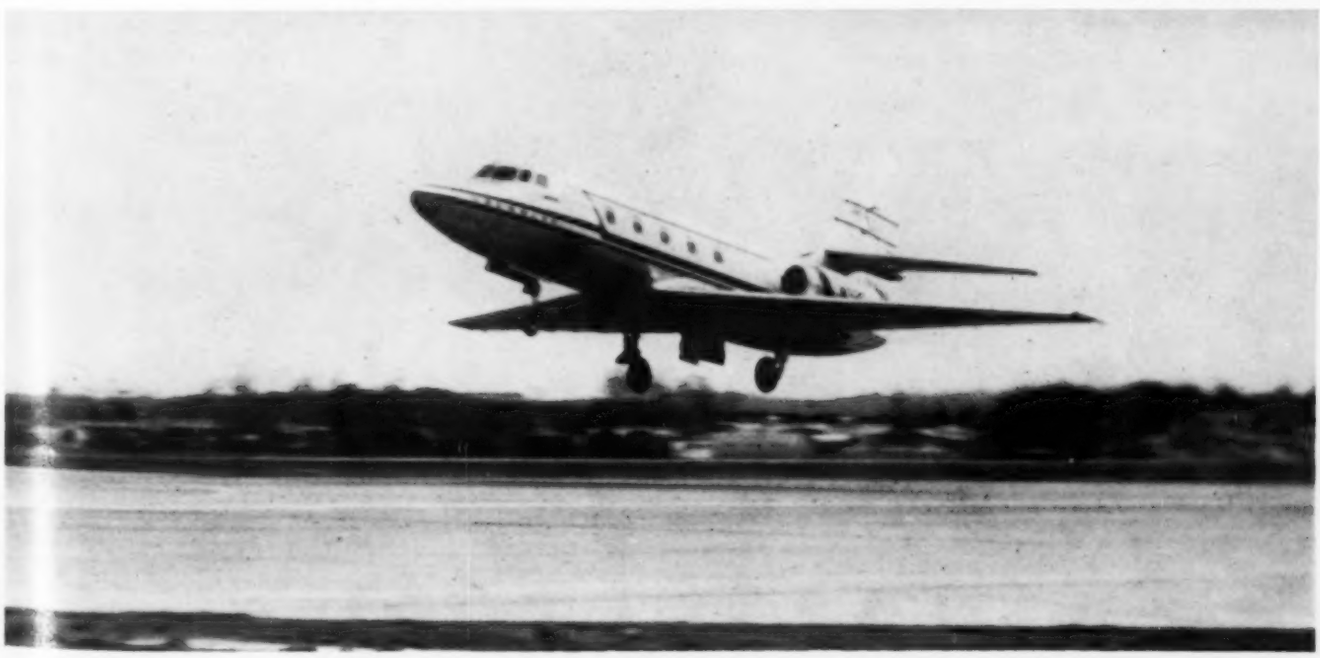
Lockheed was to roll out its second JetStar prototype in late March. It is virtually identical to the first prototype, which made its first flight on Sept. 4, 1957, only 34 weeks off the drawing board.

Meanwhile, tooling equipment used for building the two prototypes at Lockheed's Burbank plant in California was being moved to its plant at Marietta, Georgia, where production is ready to start as soon as the expected military order is signed. N. A. Keller has been named project engineer for the JetStar. He worked for the company headed by Malcolm Lockheed in 1930 before the present corporation was formed and has interspersed 16 years of service at Lockheed with positions with other firms. At the Georgia Division since 1953, he has been project engineer for B-47 bombers produced there and for several experimental programs.

In its sales pitch to the military, Lockheed has pictured the JetStar, designated as the UCX-329, as having many virtues for modernizing military utility aircraft fleets with "greater proficiency and combat crew potentials for pilots assigned administrative duties, improved aircraft capability through faster transportation of key personnel, and improved in-commission rate of combat aircraft through ability to transport maintenance personnel and parts for grounded key personnel." It was de-

(Continued on page 54)

JetStar has a normal sea level rate of climb of 3,000 feet per minute. Approach speed is 140, stall speed 92 mph. The JetStar can operate from runways of less than 5,000-ft. length.
—(Lockheed Photo.)



Efficient as the Mooney design is, the Mark 20-A offers comfortable four-place seating for hefty people. At 2,450-lb. gross, it has 1,010-lb. useful load, standard fuel capacity of 35 gals. and optional auxiliary fuel capacity of 14 gals. more.
—(FLIGHT MAGAZINE Photo.)

High Speed At 20 Miles Per Gallon

New 180-hp. 4-place Mooney Mark 20-A cruises 170 mph. on 8.4 gals. per hour

By GEORGE E. HADDAWAY

HOW would you like to cruise well up in the 170-mile-an-hour speed spectrum behind 180 horsepower on only 8.4 gallons of gasoline per hour? That's getting 20 miles per gallon with high performance. We did just that on a recent flight from Mooney Aircraft's factory at Kerrville, Texas, to our home base in the brand-spanking-new 180-hp. Mark 20-A — it features a thirty horsepower increase over the Mark 20.

Mooney made the decision to put the 180 Lycoming in their sleek four-seater last September. In less than 120 days from receipt of the first engine they had an Approved Type Certificate from the CAA. That's the way they do things these days at Mooney. The plant is literally jumpin'.

The Kerrville-to-Dallas hop was the last leg of a three-stop cross-country trip with Norm Hoffman, Mooney's vice president for sales, from Dallas to Austin to Kerrville to Dallas. It was the third leg that proved to be the clincher. Low ceilings on the first two legs never permitted more than 2,500 feet of altitude so we didn't get to see what she'd do at 8 to 10,000 feet until the last leg, 238 miles across Central Texas. Winds aloft info, which is never too reliable, gave us 20 knots from 340 degrees around 8 to 10,000 foot altitudes. Since our

Short-legged landing gear and large baggage door combine for ease of loading. Mooney's gear and flaps are manually operated to eliminate maintenance requirements of mechanical systems. Fuselage is metal and wing is pressure-bonded sealed-for-life wood, its piano-finish smoothness making possible a laminar-flow wing for minimum drag.
—(FLIGHT MAGAZINE Photos.)

An impressive picture of speed, the beautiful **180-hp.** *Mooney is as fast as it looks with a* **180-mph.** *cruising speed at 75% power. Note squared-off wingtip's laminar-flow airfoil section.*

—(FLIGHT MAGAZINE Photo.)

course was 25 degrees we ended up with a cross-headwind. We figured our elapsed time at one hour, 31 minutes. Kerrville is at an elevation of 1,600 feet. We leveled off at 10,000 feet only eleven minutes from take-off. The extra 30 horses in the Mark 20-A really pay off in climb-out.

Pulling out the old computer, we came up with the proof of the pudding. Indicating 146 mph. at 10,000 feet, zero degrees centigrade outside air, we trued out at 170 miles per hour.

We looked up the power curves and found that, at 2,250 rpm. and 20.5 inches of manifold pressure, we were pulling about 55 per cent power. Wind information must have been wrong because we did 170 miles per hour the first hour out including the climb.

After the first hour we started our let-down and at 8,000 feet we found our best performance. At 2,200 rpm. and 22 inches manifold pressure, we trued out at 176 miles per hour. Increasing the power setting to 24-22 didn't help much. This turned out to be 70 per cent power and we trued out about 179 miles per hour. Hoffman figures gas consumption day in and day out at about 9.5 gallons an hour. We were able to squeeze only 13 gallons in the tank at Southwest Airmotive after one hour, 33 minutes in the air. That gave us a remarkable leaned-out consumption of only 8.4 gallons per hour.

The trip to Austin and then on to Kerrville was made under low and heavy overcast so our consumption was 10 gallons an hour. But even this was real economy and drives home the obvious fact that the Mooney is the lowest cost high performance four-place on the market. We did the 184 miles Dallas to Austin in one hour and nine minutes. The 70 miles from Austin to Kerrville was a 25-minute hop. We trued out about 178 miles an hour on this leg and burned just under 10 gallons an hour only 1,000 feet above the terrain.

Just as impressive as the improved performance from additional horsepower is the amazing comfort achieved in the 1958 model. Even the severest critics of Mooney's space-saving-for-performance philosophy probably now will admit there's plenty of room in front and back seats, accomplished by some real smart cabin design and upholstering, offering plush comfort without compromising performance. They've turned in a remarkable job of soundproofing, too, and much credit for the quiet cabin must go to the finely engineered water-tight door. You expect performance from the clean designs rooted in the fertile brain of Al Mooney and his followers. So the big surprise in the Mark 20-A is

Minimum frontal area and low-drag aerodynamic design of the Mooney make possible its high performance at low power. Picture was made at new Addison Airport for executive flying at Dallas.

—(FLIGHT MAGAZINE Photo.)

Efficiently arranged and beautifully-finished Mooney panel is of fiber glass construction, separates flight and engine instruments with center radio panel and offers additional radio space at right. Photo at left shows headroom for people with hats.

—(FLIGHT MAGAZINE Photos.)

the adequate seating room and exceptional comfort.

Short-field performance likewise is improved with the extra horsepower for take-off. Only fifteen pounds is given up, increasing the empty weight from 1,425 pounds in the 150-hp. model to 1,440 pounds for the 180-hp. Mark 20-A. Gross is still 2,450 pounds. Two 17.5-gallon main tanks and an auxiliary tank of 14 gallons provide a maximum of 49 gallons.

We're still sold on the manually-operated retractable landing gear and flaps. Mooney's customers have come to appreciate not only the weight saving involved but also the trouble-free simplicity of manual operation. The same thing holds true of the wing structure. For years there has been a preponderance of opinion in favor of metal over wood. But Mooney has persevered with the all-metal fuselage and wooden wing, which provides the only laminar flow surface in the light-plane industry. They are actually using the wood construction as a sales point. Ever since the old Lockheed Vega days we've always held the view that while wood is no better than metal, certainly metal is no better than wood and they both have their good points.

While at the factory in Kerrville we inspected the stripped wing of Bill Wyatt's Mark 20, which he put down last winter in the ocean on the coast of Portugal after picking up a load of ice on an attempted non-stop flight from Galveston, Texas, to Rome, Italy. Bill had it made until Madame Hard Luck took over on the icing. The only damage to the wing was done by the boatmen who got the plane out of water. The fact that the wing is repairable makes a terrific testimony for wood construction.

Instead of being discouraged by this unfortunate experience Wyatt, who is on the Mooney sales staff, plans to take a Mark 20-A around the world in June — and this time he intends to avoid the ice. On our flight in the 20-A, we tested Glidden's new ice re-

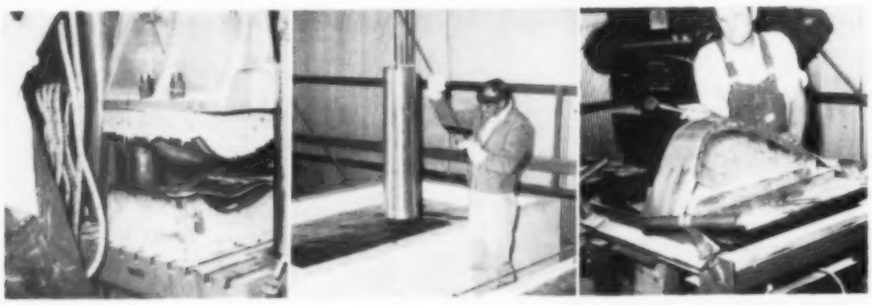
(Continued on page 43)

Mooney Mark 20 and Mark 20-A

Factory Data

	Mark 20	Mark 20-A
Rated Power, hp.-rpm.	150-2,700	180-2,700
Gross Weight, lbs.	2,450	2,450
Empty Weight, lbs.	1,425	1,440
Useful Load, lbs.	1,025	1,010
People and Baggage, with full tanks, lbs.	815	800
Fuel, gals.	35	35
Fuel Cap., with opt. tank, gals.	49	49
Oil, gals.	2	2
Baggage, lbs.	120	120
Top Spd., sea level, mph.	171	190
Cruise Spd., 75% hp., mph.-alt.-ft.	165- 4,900	180- 7,500
Cruise Spd., 55% hp., mph.-alt.-ft.	150-10,000	165-10,000
Range— Miles-gals.-mph.-alt.-ft.		
	900-49-150-10,000	1,075-49-165-10,000
	750-49-165- 4,900	900-49-180- 7,500
	675-35-150-10,000	760-35-165-10,000
	600-35-165-4,900	630-35-180- 7,500
Rate of Climb, fpm.	900	1,150
Service Ceiling, ft.	17,200	20,000
Landing Speed, mph.	57	57
Take-off Distance, ft.	725	600
Landing Distance, ft.	575	575

NOTE: Performance is at gross weight and at sea level unless noted. Retractable gear and flaps are manually operated. Engines are 4-cylinder Lycomings.



Craftsmanship in Mooney metal-working is pictured at left, with metal forming at left and right and metal treating in the center picture.

Moving into the Air Force primary training picture is the Cessna T-37 twin-jet trainer (top), to which students transition after 30 hours in the Beech T-34 Mentor (left). The North American T-28 (right) is out, being replaced by the T-37 jet.
—(Bainbridge Air Base Photo.)

Jet Success For Primary Training

THE U. S. Air Force's first experimental jet-flying primary training class completed its course last month. Result: The experimental class proved that student pilots are capable of transitioning into jet training aircraft in the initial phase of the pilot training program and that the new Cessna T-37 jet trainer is successful.

Known as Project Palm, the class was conducted at the Southern Airways civilian contract primary school at Bainbridge, Georgia. Originally at Flying Training headquarters at Waco, Texas, where the T-37 was put through early test phases, the project was transferred to Bainbridge in July, 1957. "Palm" student pilots began jet training in the T-37 after receiving only 30 hours of instruction in the piston-powered Beech T-34 Mentor — ordinarily, student pilots receive 130 hours in piston-engine aircraft before transition to jet aircraft.

In the T-37, each student received 150 flying hours to test both the proposed flying syllabus and maintenance demands of the aircraft. When the course had been finished, its success proved that the primary student could accomplish the demands of this training phase with 100 hours — reducing the proposed flying time by one-third. Officers in charge said the students demonstrated a greater motivation to learn, as shown by academic and flying grades, which were higher than usual. The T-37 came through with no more than the normal problems associated with newly-designed aircraft.

All students in the program agree that jet training early in the learning process is the only realistic means to accomplish their future goal — piloting supersonic aircraft. T-37 advantages over propeller trainers were listed as including the elimination of prop controls, prop torque and fuel mixture controls. This provides more opportunity for flying itself. Side-by-side seating of instructor and student is pictured by those in charge as having advantages over tandem seating — the student can observe his instructor's manipulation of controls whereas he can only guess what the instructor is doing in a tandem trainer.

"By introducing our officers to a high-performance jet airplane after only 30 hrs. of training in a propeller-driven aircraft, we know we can speed up the transition time into sonic air-

(Continued on page 42)

Lt. Col. Elmer L. Masters (left, below), commander of Bainbridge Air Base, and Major A. J. Boutselis, commander of the first experimental jet primary training program, discuss the advantages of the twin-jet T-37 (below) over propeller-driven trainers.

Three-place Bell helicopter leaves hydrographer to measure snow while a second "snow man" is lifted over to another snow field for measurements 10,000 *ft. above sea level. Thus three men and a machine do in a single day a job requiring four men on snowshoes* 10 *days to complete.*

—(Southern California Edison Photo.)

Copter Cranes Eliminate Access Roads

THE helicopter's remarkable ability to lift men and materials in and out of otherwise inaccessible terrain is graphically demonstrated in the photos on these pages. The small Bell helicopter above is airlifting "snow men," hydrographers, two at a time, from one snow field to another 10,000 ft. above sea level so they can measure snowfall and accurately forecast water run-off for power stations and farm irrigation needs in the California valleys below. Thus the little Bell accomplishes in one day for Southern California Edison Company a job that formerly required a 4-man team to spend ten days on snowshoes. The big Sikorsky S-58's below and on the opposite page are airlifting materials and even fabricated poles for power transmission

Sikorsky S-58 picks up a bundle of tower steel to airlift it into difficult mountain terrain. With 1,525-*hp. piston engine, S-58 has* 5,140-*lb. useful load.*

—(Sikorsky Photo.)

nes in difficult mountainous terrain. But what is even more remarkable bout these accomplishments for outhern California Edison Company s the helicopter work potential they uggest for future development. It oes not take much imagination to isualize true flying crane helicopters irlifting very heavy and bulky loads ver wilderness and mountainous areas nd built-up metropolitan city centers alike — loads such as ready-mixed concrete and other materials for construction, prefabricated sections of homes or factory buildings, ditch-digging machines and the pipe itself for new petroleum pipe lines, entire spans for highway bridges, oil field drilling equipment — the list is endless.

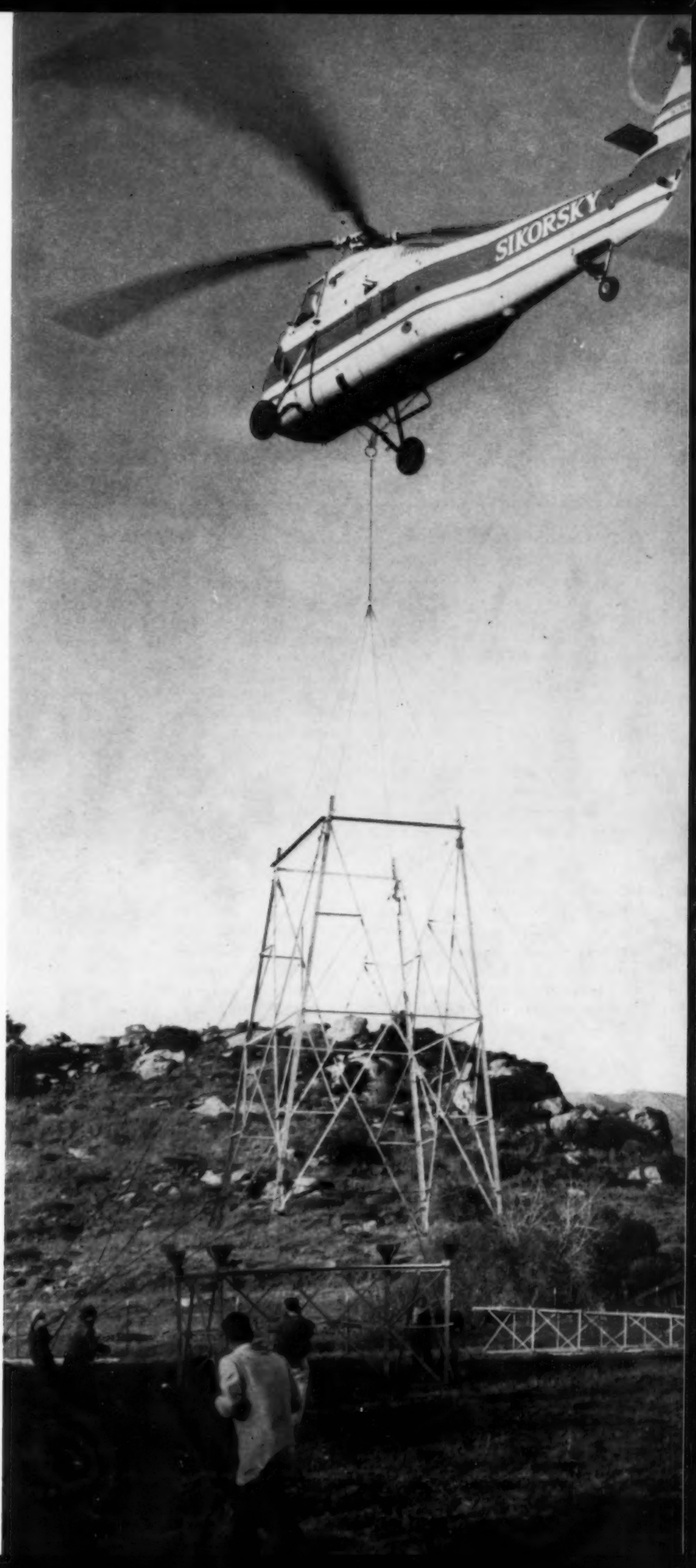
As demonstrated by Southern California Edison, the major virtue of the flying crane copter is not just its ability to pick up and carry bulky loads but its ability to lower, place or deposit its cargo with uncanny accuracy on precisely the exact spot desired. Thus the crane copter is more than a flying truck — it is a precision tool for fitting structures together, for example — as in joining bridge spans or steel beams on skyscrapers or pipe sections in a pipe line.

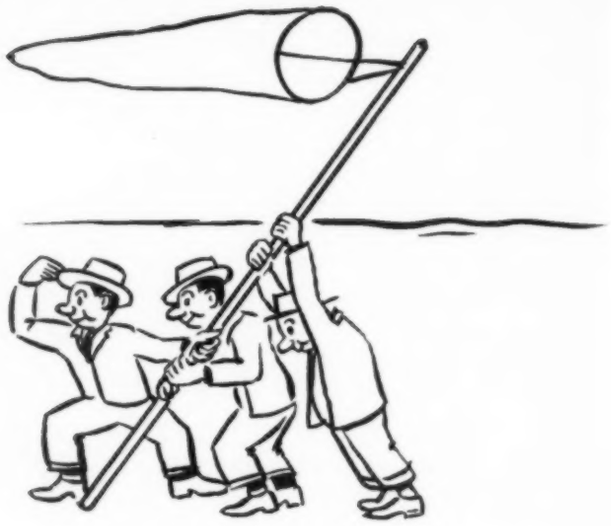
For the California job, this precission was important. After hauling

(Continued on page 42)

Sikorsky below carries a power pole complete with cross arm and insulators. At right, the S-58 gently lowers into place a tower section for a new transmission line constructed in the mountains without the use of access roads.

—(Southern California Edison Photos.)





Aircraft Salesman of the Year

He Sells Airports, Too

THIS story is about a guy who builds airports in order to sell airplanes. His name is J. C. Kemper, Aircraft Sales Company salesman based on Meacham Field, Fort Worth. He won the Cessna Aircraft Company's 1957 single-engine salesman contest, having sold $175,500 worth of new airplanes during the year to lead the nation. And for our money he should also win the prize for the best airplane sales story in many years.

Back in the summer of 1955, he began to run into difficulty selling Cessnas in the big town. He started working the outlying territory but found the smaller towns had no airports. He went into Nocona, Texas, one day and started drinking coffee with some of the townsfolk, got acquainted with the Jaycees and sold them on the idea of developing a small landing field. They grabbed the bait and ran under a rock. They talked the city out of a strip of land adjacent to the municipal golf course. They borrowed a maintainer and a bulldozer from the county and scraped out a runway. Three weeks later Mr. Kemper sold an airplane and within a couple of months had put four Cessnas into owners' hands

This proved his theory you have to have airports if you want to sell airplanes. Scouting around the territory later that year, he dropped into Graham, a substantial town whose airport had gone to pot. He went direct to the mayor, a civic-minded doctor who agreed they should put the airport in shape. Within six months Graham had a 3,880-ft. hard-surfaced strip and a revolving beacon. Before 1955 ended, Kemper sold two new 180's, two new 170's, one used 140 and several puddle-jumpers, whose owners later switched to new airplanes.

Since the hard-surfaced runway was put in, he has delivered a total of 16 airplanes. He even went so far as to get blueprints drawn up for T-hangars that would meet the city's building code. The owners build their own hangars on ground rented from the city at $10 per year. There are fifteen in use with more to come. Kemper brought aviation back to Graham, and more than paid for his development work in airplane sales. Furthermore, new prospects are being developed in and around Graham — where an airplane salesman was considered an oddity three years ago.

Gainesville, also within a 75-mile radius of his Fort Worth base, was another case of old airport gone to weeds. Kemper started working this town over with cold calls a couple of years ago and personally sold eleven airplanes on the field. An operator moved in recently and the townsfolk have forgotten the wild days of World War II when the airport was a graveyard for many fledgling pilots taking military flight training there.

Kemper couldn't get the Jaycees steamed up in Gainesville. But he found a used car dealer and the local Coca-Cola bottler and they joined forces with him and got the wheels of the town interested. A little fixing up here and there put the airport in shape. There are now 30 airplanes on the field and Gainesville is back on the aviation map.

In the autumn of 1956, Kemper landed his 180 alongside an express highway being built near Waxahachie. He got acquainted with the contractor, took him for a ride and they went into town. Here he made friends with the local radio station and visited with owners of small manufacturing plants. They talked a local landowner into donating a 2,700-ft. strip alongside a good road and the contractor furnished the grader and bulldozer to do the necessary runway work. Later that year, the contractor bought a 172 and Kemper taught him to fly it. Limited as it might be, the field is now known as the Waxahachie Municipal Airport.

"Sure it takes time to meet all these people and stir up some interest," Kemper told us, "but when I explain that it doesn't require a lot of money, including Federal funds, to get an airstrip or airport started, it's worth it to see the look on their faces!" Apparently too many towns and communities believe every airport has to be a major production costing millions of dollars.

Perhaps Kemper's most outstanding victory was the bustling county seat town of Cleburne, just south of Fort Worth. There were two airplane owners living in this town

(FLIGHT MAGAZINE sketch by John James.)

who based their airplanes at Russell Field, Ft. Worth. Kemper started making cold calls in Cleburne two years ago. He found some excellent prospects who said they'd buy a plane if they had some place to keep it. Loaded with these commitments he gathered up his prospects and called on the city council. While a majority of the council was sympathetic, a couple of old fogies clobbered the deal. They wasted a lot of time and when they saw they were licked as far as the city fathers were concerned, Kemper and five of his prospects pooled $50 each and leased 56 acres of land on a major highway just outside town. They borrowed the county's maintainer and the city's pneumatic roller. In two days they had an airport they could land on. In two weeks Gulf Oil had put in gasoline, a windsock and a telephone. Eleven nice new T-hangars grace the strip and 18 airplanes, all sold by Kemper, are in active use on the field.

This rapid aviation growth amazed the entire town. The newspaper got on the bandwagon. Last November the townspeople voted a bond issue by the largest majority in history, providing $67,500 for a new municipal airport. The land has been purchased and the CAA says they'll match the local funds dollar-for-dollar.

"I'll never forget how disappointed I was after our original turn-down," Kemper relates. "The meeting took place on Friday night. Saturday morning I flew down in a 172 and landed in a small field just one mile from town. In no time at all I had a good audience and observed the people very closely. Soon I asked three businessmen if they would like to see Cleburne from the air. They all accepted but with them in the 172 I couldn't even taxi — much less take them for a ride. Two hours, ten automobiles, three trucks and a Jeep later we had a nice packed path about 1,500 feet long and I went to work. I wound up with all kinds of prospects and no place for them to keep their planes — should they buy. Five of them and myself talked to the fellow who owned the land where we had landed. He was in the insurance business and said he would lease us 56 acres for $300 per year for five years if I would give him the insurance business on what I sold in Cleburne. We signed up then and there."

The following Monday Kemper sold a 1954 Tri-Pacer. Two days later a 172. On the following Saturday he sold a used 170, an Ercoupe, a Luscombe and an Aeronca Chief. Then followed new Cessna sales to bring the total to 18. As soon as the new hard-surfaced airport is built, he plans to deliver three 310's to commitments in hand. Little wonder they have named the original strip "Kemper Airport."

"I've just got started good," Kemper told us. "There's still a lot of angles I have to work. Taking the businessmen and their wives and kids for rides is mighty important. The newspaper editor will usually go along with anything to improve the town and they were especially helpful in Waxahachie and Cleburne. I have to keep working these smaller towns. Cold calls and take 'em for a ride. I've learned that the real market for lightplanes is not the big cities — the real plane market is in the smaller towns. Most of them don't have airports but the market is there if you get some kind of facility going. I'm working on some others right now and all of them will either revive an old airport or pitch in and get a good strip scraped out. On these little one-way strips all you have to do is go out once a month and blade it. T-hangars are reasonable and can be financed. Once I get a plane or two sold I have it made. But I got to keep working."

Kemper's house is full of all sorts of sales contest winnings — furniture, electrical appliances, sporting goods and some plain junk. "If I win any more contests I'll have to get a new house," says Kemper. At the rate he's building airports, we figure that might be this year.—GEH.

Here's Aircraft Sales Company's J. C. Kemper (left), receiving a trophy for leading Cessna's 1957 *national aircraft sales contest. Making the presentation is Bing Bingham, director of the National Sales Executive Club.*

Piper Apache

Aero Commander

Cessna Model 310

Business Flying Sales Leaders

THE big numbers on the photographs on these pages show how many new business planes of leading designs were delivered by major U. S. manufacturers during calendar 1957. The figures are from the Aircraft Industries Association's Utility Aircraft Council, and were released last month.

As an industry, nine manufacturers covered in the AIA report delivered a total of 6,118 new aircraft during the year at billings of $99,652,000 — down from 6,738 planes billed at $103,791,000 during the preceding 1956 calendar year, for a decrease of about 600 units and $4,000,000.

Beech Aircraft Corporation topped the nine companies in billings during 1957, coming up from $28,770,000 for 1956 to $32,110,000 for 1957, its unit deliveries for the two years being 724 in 1956 increasing to 788 in 1957.

Cessna Aircraft Company delivered more aircraft than any other manufacturer, its total being 2,489 units billed at $30,988,000 in 1957 — down from 3,325 units billed at $38,570,000 in 1956.

Dollar volume in 1957 was shared as follows:

	Billings	Pct. of Total
Beech	$32,110,000	32.22
Cessna	$30,998,000	31.27
Piper	$23,294,000	23.38
Aero Design	$ 9,914,000	9.95
Others	$ 3,336,000	3.18
Totals	$99,652,000	100.00

Gainers in 1957, in addition to Beech, were Champion Aircraft, up from 162 planes billed at $597,000 in 1956 to 217 planes billed at $1,045,000 in 1957; Mooney Aircraft, up from 79 planes billed at $741,000 in 1956 to 107 planes billed at $1,095,000 for 1957, and Call Air, up from 20 planes and billings of $112,000 in 1956 to 33 planes worth $204,000 in 1957.

Those with declines, in addition to Cessna, were Aero Design, down from 154 Aero Commanders billed at $11,183,000 in 1956 to 139 Commanders billed at $9,914,000 in 1957; Piper Aircraft, down from 2,329 planes billed at $23,474,000 in 1956 to 2,300 billed at $23,294 in 1957, and Taylorcraft, down from 23 planes and $216,000 in billings for 1956 to 12 planes and $128,000 in billings for 1957.

Analysis of the 1957 figures provides an interesting breakdown of trends in sales in twin-engine, four-place and two-place categories, as follows:

Twins totalled 923 in number, four-

Beech Bonanza

Mooney Mark 20

Cessna Model 170-172 Series

Beech Twin-Bonanza

Beech Model 18 Series

Beech Travel Air

Analysis shows who sold how many planes for how much in 1957

place models 3,983 and two-place models 1,145, with 66 special-purpose airplanes (33 Call Airs and 33 Helio Couriers).

Deliveries of twins were shared by four manufacturers as follows:

Piper Apache 400.

Beech (three basic models) 234 — (117 Model 18's, 108 Model 50 Twin-Bonanzas and 9 Model 95 Travel Airs, the latter delivered only in October, November and December and not scheduled for full production until later in 1958).

Cessna 150 Model 310 and 310B's.

Aero Design 139 Aero Commanders (34 Model 560-E's and 105 Model 680 Supers, with the factory shut down by fire destruction during the latter part of the year).

Deliveries of four-place airplanes were shared as follows:

Cessna 2,248 units of four models — 939 Model 172's, 36 Model 170's, 835 Model 182's and 438 Model 180's.

Piper 1,101 Tri-Pacers.

Beech 515 Bonanzas.

Mooney 107 Mark 20's.

Taylorcraft 12 Model 20's.

Four manufacturers shared the two-place field, as follows:

Piper 799 Super Cubs.

Champion 217 Travelers and Tri-Travelers.

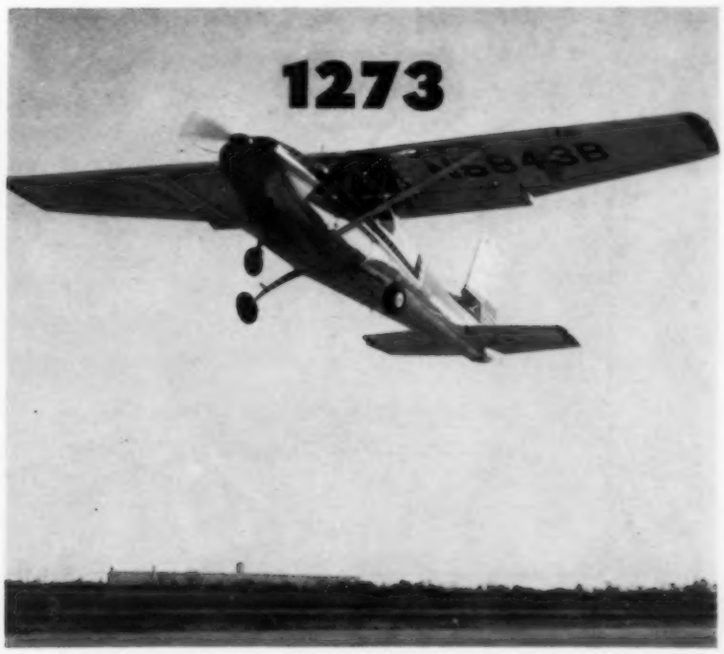
Cessna 90 military L-19 Bird Dogs sold to purchasers other than the U. S. government and thus classified as commercial sales.

Beech 39 Model B-45 Mentor trainers likewise classified as commercial sales because they went to purchasers other than Uncle Sam.

Several interesting new models are expected to swell the totals for some of the manufacturers during 1958. These include Aero Design's new Alti-Cruiser with pressurized cabin, Beech's new Model 95 small-twin Travel Air, Cessna's new 4-place Model 175 and 2-place Model 150 and Piper's new 4-place Comanche.

Piper Tri-Pacer

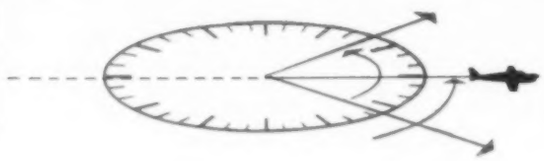
Cessna Model 180-182 Series



Install the *NEW*, powerful...

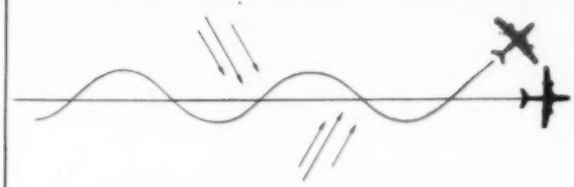
LEAR SUPER A

Here's what Super Arcon does:



HOLDS HEADINGS

Super Arcon takes the work out of flying! Navigation now simple because your plane holds headings to better than 1° per minute.



REDUCES AIR SICKNESS

Perfect yaw damping eliminates "tail waggle" in rough air, greatly increasing flight enjoyment for everyone.

ENDS GRAVEYARD SPIRAL

Super Arcon may only save your life, with it any pilot can make a 180° turn safely.

TWIN ENGINE "MUST"

Single engine failures need never be fatal! Even during take-off and landings the alert Super Arcon instantly applies strong counter-acting rudder force to keep the ship straight.

AN IFR PILOT CLAIMS

"...Super Arcon makes IFR flights and ILS approaches a cinch..."

WITH SUPER ARCON YOU

Fly Faster...Fly Straighter
Fly Smoother...Fly Easier
...at less cost!

*The Super Arcon can fly any size or t

First Full Time Automatic Rudder Control

THE SENSOR is the hermetically sealed, long life, a.c. powered Rate Gyro spinning at 22,000 revolutions per minute.

THE BRAIN is the Super Arcon computer-amplifier and uses **TRANSISTORS** and printed circuits to shape, integrate and amplify the gyro signals to energize the fast-acting servo.

THE MUSCLE is the famous fast-acting, powerful, velvet smooth Lear magnetic clutch Servo—complete with motor-alternator which powers the a.c. Gyro and Amplifier.

RELIABILITY means there is nothing in Super Arcon to stick, corrode, rust or collect dirt, dust or moisture. There are no valves or tiny passages to clog—and no relays to fail. The Rate Gyro and Servo System is use-proven on thousands of military jets—making the Super Arcon the most reliable, simplest and yet the most sophisticated directional and heading hold system.

Convert your old Arcon to a Super Arcon with the new Super amplifier!

FOR DETAILS SEE YOUR DEALER OR WRITE:

LEAR INC.

Learcal Division · *Since 1930—the finest flight equipment*

3171 SOUTH BUNDY DRIVE (DEPT. F) · SANTA MONICA, CALIFORNIA

LC-47

ze or type of aircraft-including helicopters!

Bob Kamensky (left, on wing), first private owner of a Lockheed T-33, created quite a stir on his first flight at Love Field in Dallas. To celebrate its first civilian jet engine overhaul customer's success, Southwest Airmotive had a couple of vice presidents waving a big banner saying "Welcome Kamensky" while these three lovelies waved cowboy hats.
—(FLIGHT MAGAZINE Photo.)

First Civilian T-Bird

INSTEAD of the Shah of Abadab or some Texas wildcatter sporting America's first private jet, guess who's flying with all the honors? Robert V. Kamensky Company, North Hollywood, California, is the name neatly painted on the jazzy jet, which is a 2-place Lockheed T-33 Shooting Star painted white and turquoise with a Bonanza paint stripe and a large "N7490C" lettered on its fuselage.

Bob Kamensky, the dude who did it, chased down military-discarded bits and pieces of T-33's all over the world for three and a half years before he was able to come up with one flyable T-Bird.

This was the hard way of necessity — neither the military nor Lockheed has yet started selling T-33's, surplus or otherwise, to ordinary financiers like Kamensky, who's in the parts business. Nor has the CAA certificated such a flying machine, although he has applied for certification.

He's flying, though. This became a reality last month when the last of many engine parts were sent to Southwest Airmotive in Dallas and Kamensky's Allison J33 of 5,400 lbs. thrust became that firm's first civilian jet overhaul job. Kamensky says his civilian T-Bird is a little lighter and thus has more performance than military T-33's, which gross 15,000 lbs. on an 8,400-lb. empty weight, carry 683 gals. of fuel including tiptanks, can attain as much as 580 mph., have a 45,000-ft. ceiling and can climb 5,525 fpm. at sea level and have a range of 1,345 miles. Porterfield Air Service at Phoenix, Arizona, put the Kamensky T-Bird together.

Here's Kamensky's 580-mph. dream chariot, which can climb 5,525 fpm. and has a 1,300-mile range on 683 gals. of coal oil. Span is 38 ft. 10.5 ins., length 37 ft. 8 ins., height 11 ft. 8 ins. and wing loading 60.8 lbs. per sq. ft. Baggage and radio are in the nose.
—(FLIGHT MAGAZINE Photo.)

General Aviation's Survival

Our airspace must remain a public resource

By
CARL J. ALLY

Business executive of Detroit with commercial, instructor and instrument ratings.

LAST fall, a number of important general aviation groups held annual meetings. One luncheon was graced by the presence of CAA Administrator James Pyle and Presidential Assistant Gordon Bennett. There weren't any military aviation people present. There weren't any airline people present. This was entirely a general aviation group. It is indeed fortunate for general aviation that Mr. Pyle and Mr. Bennett were able to get first-hand exposure to a segment of general aviation opinion since they will be in a position to act on matters that are of vital concern to the general aviation group.

Great concern was expressed by those present — members of the National Pilots Association, the National Air Taxi Conference and the National Aviation Trades Association — over the forthcoming plans for "modernizing" the airways and aviation facilities in the United States. There is a great deal of apprehension, and rightly conceived apprehension, that the reorganization of our air space is being planned to accommodate, on an ideal basis, large multi-engine, professionally-crewed airplanes. The trouble is that the rest of aviation may be asked to adapt their operations to suit a system designed to facilitate and expedite the super-crewed and super-equipped airplanes.

Further, it appears that this business of adapting can become a one-way street, which is to say that there is very little evidence that the airlines and military will be asked to adapt their operations to take into account the operations of the general aviation group, even though general aviation aircraft are vastly superior in numbers, hours flown and movements.

To general aviation organizations, and no doubt to groups of the growing number of ordinary people everywhere who use personal airplanes as part of their everyday lives, there is something fundamentally wrong with taking a resource as vast and free as our airspace and superimposing on it a system of procedure and control so complex that it will, in effect, rule out a substantial portion of the airspace for the general aviation user. This is really a matter of principle.

As one whose experience includes flying four-engine aircraft in excess of 100,000 pounds gross weight, four different types of jet aircraft and uncounted numbers of twin-engine and single-engine aircraft from 7AC Aeroncas to 680 Aero Commanders and through B-26's — and all of these types off of airports that serve all branches of aviation; general, military and airline — it is very difficult to see why the air carriers cannot operate so as not to usurp the fundamental right of the citizens to move freely in what is, after all, the publicly-owned system of facilities and airspace. This may slow some schedules; it may increase some fuel costs; it may even mean defining and enforcing "see-and-be-seen" standards on aircraft designs and air crews that use altitudes where general aviation flying is the dominant airspace user.

This will undoubtedly cause an outcry that it is an unfair comparison, but if we were to organize our highway system in such a manner that it expedited the flow of truck and bus fleets at the expense of the individually-owned automobile, there would be an outcry and revolt which would check any authority that attempted to impose such a system. No doubt a measure such as this on our highways would significantly reduce highway traffic fatalities, but only at the expense of the freedom of movement of millions of Americans.

Unfortunately, we in general aviation do not yet have the overwhelming numerical superiority that makes our access to the airways and facilities a must in the eyes of any federal agency. Most of us would rather not join any crusades. Most of us would rather not devote any of our personal time to programs or groups seeking to influence action which is favorable to our use of aircraft. Most of us would much prefer to simply get in our airplanes and go about our business and not have to worry that our fundamental right to do this in an expeditious and simple manner is being threatened. Unfortunately, despite our preferences, unless we do band together to insure that the reorganization of the air is on a basis which will preserve our rights, we may all find ourselves "complexicated" right out of the air.

While the avowed ultimate objective of at least one governmental report is complete controlled separation of all airspace, it isn't at all evident that our segment of aviation can't win the support and interest of men like General Quesada, Jim Pyle and Gordon Bennett. On the contrary, it does appear that they are actively seeking ways and means of understanding our requirements and viewpoints so that they can do the best job possible of insuring the continued growth and prosperity of the general aviation industry in the United States and continued growth in the usage of small aircraft.

But these men are faced with the fantastically complicated task of sorting out what is legitimate and what isn't legitimate in the requirements of the various groups involved — airline, military and general aviation. Unless we want the airlines and the military to run off with the ball, we will have to make known to the people who are in positions of responsibility and authority what our needs and desires are. As further insurance that our needs and desires will be practically taken care of in the regulations that are written, we should, as a group, be willing to explore the specific ways and means, including new concepts for air traffic control, the specific language of regulations and the exact requirements for facilities that will be needed by us as well as by the vast numbers of private citizens and small businesses who are sure to follow us in the use of small aircraft.

We should not be in a position of merely protesting to the government agencies involved in this work, but should be in the position of offering constructive suggestions and assistance to these men wherever it is called for. There isn't anything for us to gain by advocating no control or no system or no regulations or for us to deny the importance of our wonderful airlines. Nor can we be blind to military requirements. The needs of the military and the airlines must be served, too, if any lasting solution is to come to all of us. No solution that punishes

(Continued on page 42)

For Better Radio Service

Aircraft Electronics Association asks STC relief

Officers of new Aircraft Electronics Association, left to right, include Charles Peacock of Aircraft Radio & Accessory, Denver, president; Phil Stomberg of Minnesota Airmotive, Minneapolis, vice president, and Cal White of Airmar Radio, Ronkonkoma, N. Y., treasurer. Gene Baker of Chamberlain Aviation, Akron, is secretary.

—(FLIGHT MAGAZINE Photo by Tom W. Collins.)

LEADING aircraft radio and electronics sales, service and installation shops of America completed organization of their new Aircraft Electronics Association at its first annual convention in Dallas last month, dedicated to year-around committee activities for the elevation of aircraft electronics standards and practices throughout the industry. It is headed by Charles O. Peacock, Aircraft Radio & Accessory Co., Denver, president; Phil Stomberg, Minnesota Airmotive, Minneapolis, vice president; Cal White, Airmar Radio, Ronkonkoma, N. Y., treasurer, and Gene Baker, Chamberlain Aviation, Akron, secretary.

The group's first major action was a resolution calling on CAA Administrator James Pyle for immediate relief from "the present unworkable administration of the supplemental type certificate (STC) program." Members cited numerous instances proving STC hardships on both shops and customers and D. R. Anderson, Anderson Aircraft Radio Co., Detroit, was named chairman of a special committee to work for STC relief after the association voted to affiliate with the General Aviation Facilities Planning Group, comprising national organizations embracing all general aviation activities. The AEA resolution is as follows:

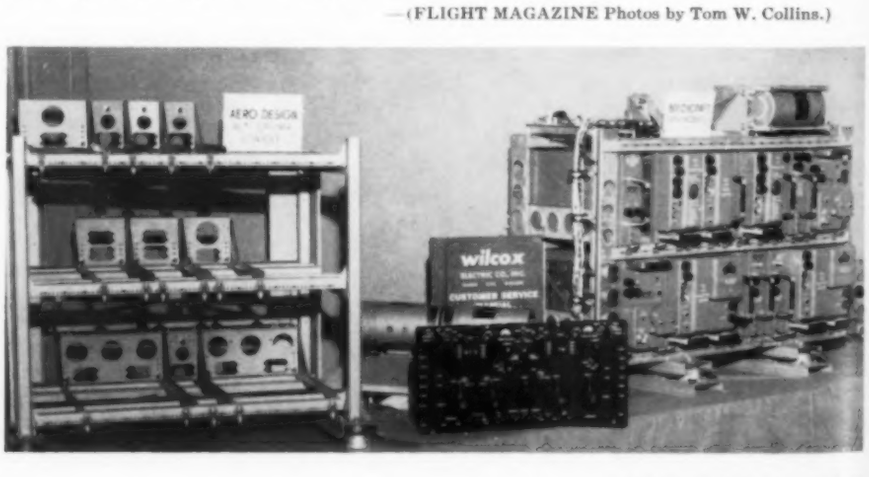
"That the Aircraft Electronics Association request the CAB and the CAA to grant immediate relief to the aircraft industry by changing the present unworkable administration of the supplemental type certificate program. In view of the unsatisfactory results that have been produced by other industry committees in their requests for relief it is suggested that a committee be appointed to work with GAFPG, the Industry Committee for Civil Air Regulations, NBAA and AOPA in an effort to secure relief, and that this committee prepare data to be submitted to our members who in turn will petition their respective Congressmen requesting that the CAB and CAA take immediate steps to change the present unworkable administration of the STC program."

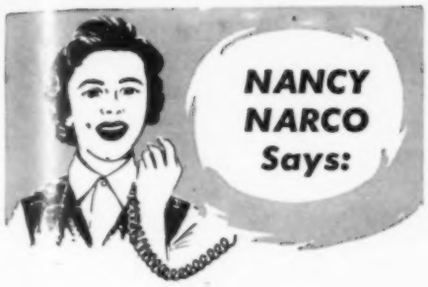
Anderson commented as follows to the group of radio men: "When we talk about 'approved repair station certificates' and civil air regulations that govern what can be done under an approved repair station certificate, it is time to take a look at the chaotic mess our industry is in. We are not against the STC as such. We are for regulations that increase safety in the aircraft industry. However, there are certain tests that regulations must pass in order to qualify as being in the best interests of safety. On the one hand, absolute safety could be accomplished by making regulations so stringent that it would be impossible to fly. As opposed to this, we believe regulations should qualify in general under three headings: (1) They must be necessary to promote safety and the growth of aviation; (2) they must be workable under the inspection and enforcement system in use and (3) they must be concise and clear so that they can be interpreted uniformly throughout the industry.

"We have first-hand knowledge of the inconsistencies that afflict our in-

NEW AIRCRAFT RADIO DEVELOPMENTS EXHIBITED AT AIRCRAFT ELECTRONICS ASSOCIATION CONVENTION included the Wilcox packages shown below. At left, R. D. Moore of Allied Instrument, Houston, and Herman Miller of San Jose Avionics are looking at the Wilcox unitized rack for the new Alti-Cruiser pressurized Aero Commander. In front of it is Wilcox radio control panel for Twin-Bonanzas. Alti-Cruiser rack, Beech Model 18 *rack and Model* 18 *control panel, all fabricated by Wilcox, are at right.*

—(FLIGHT MAGAZINE Photos by Tom W. Collins.)





Are YOU Legal?

You may not realize it, but it's possible that every time you push the mike button you are violating Federal Communications Commission regulations, subject to all manner of federal wrath and even prosecution. Not that the good, old F.C. of C. wants to make you a tenant of Leavenworth, but they do point out that a lot of aircraft station licenses and personal radio operators licenses, too, are not valid.

You may unwittingly be in violation if . . .

1. IF you purchase a new or used airplane. A temporary authorization for 30 days is valid only if you have applied for a station license under your own name.

2. IF you install an additional transmitter in your aircraft. A new application is required covering such an installation.

3. IF you modify your existing transmitter by adding additional crystals outside the frequencies allotted to private aircraft — 118.1 through 126.7 with the exception of 121.4, 121.6, and 123.1 through 123.6 This requires the aircraft owner to file for a new station license or modification of his existing license.

4. IF you fail to file for renewal. Licenses are valid for a period of five years and renewal applications must be filed 60 days prior to expiration.

All the above situations can be handled on FCC Form 404 which can be obtained from your nearest FCC Field Office or Washington.

So, better check up on your aircraft station license and see if you're legal. You might be surprised.

And if your radio operator's license was issued before November 15, 1948, file for a new one on FCC Form 753. Licenses issued after that date are good for life — just like a Narco radio.

Regards,

Nancy

NARCO • Fort Washington, Pa.

P.S. My apologies if your free copy of "How to Fly Omni" was slow reaching you. Several thousand people wrote in, and we were swamped — had to print up a new run.

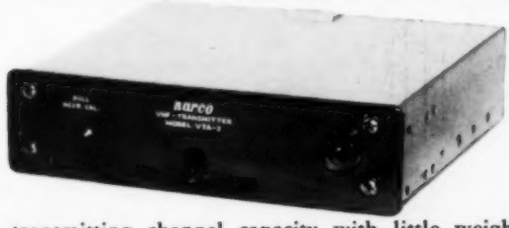
Need more frequencies?

. . . FOR BETTER TOWER, EN ROUTE AND DIRECT CENTER COMMUNICATIONS

Add the narco SIMPLEXER 27 CHANNEL VHF TRANSCEIVER

The Narco 27-channel Simplexer is business aviation's most popular communications transceiver. With its broad-band transmitter (118 to 126.7 mc) the Simplexer accommodates 27 crystals covering every channel needed for normal IFR operations. "Whistle-stop" feature gives quick, crystal-calibrated tuning for simplex transmission with center, tower or ATCS. Compact size permits convenient installation. Thousands of Simplexers are in daily use. Just the answer for that extra communications unit you need while working VOR or ILS.

AND NOW! *narco* VTA-3 27 CHANNEL TRANSMITTER WITH "WHISTLE-STOP" TUNING FEATURE



Now, multiply transmitting channel capacity with little weight penalty and lowest cost with the new Narco VTA-3, 27-channel VHF transmitter. VTA-3 can be used with own power supply as independent unit or in conjunction with Narco Omnigator or Simplexer. Available in low-band version (118 to 123 mc) or high-band version (121.5 to 126.7 mc).

"Whistle-stop" feature provides positive, crystal-calibrated tuning of any VHF receiver in the airplane.

You'll enjoy the convenience of the extra 27 channels provided by either the Simplexer or VTA-3. Bring your communications up to date with one or both of these fine Narco units. See your Narco dealer or write for brochure.

narco

NATIONAL AERONAUTICAL CORP., FORT WASHINGTON, PENNSYLVANIA

dustry. In certain localities it has been impossible to install an antenna, or a piece of radio gear, without an STC. A telegraphic survey of radio shops from coast to coast on March 11 shows there is no uniformity in interpretation of regulations as now written. A job that requires an STC in Region I is in all probability a minor modification in Region IV.

"In our opinion it should be the aim of civil air regulations to make our industry regulate itself. The CAA has already gone far in this direction by licensing mechanics, repair stations, aircraft inspectors and designated engineering representatives. However, in the administration of the STC program, the CAA has made comparatively ineffective any of this self-policing by allowing substantial confusion in three areas: (1) Inconsistency between the repair station and the local general safety inspector of what constitutes major and minor alterations to the point where it is now conceivable that all modifications could be considered as requiring an STC; (2) inconsistency in these same interpretations between regions of the CAA, and (3) inconsistency between local safety inspectors in the same region.

"We believe CAM-18 should be rewritten to resolve these inconsistencies. At the same time the revised regulations should take into account that a repair station certificate recognizes that the agency holding the certificate has taken on certain responsibilities. These apply to equipment and technically-trained personnel with experience and ability allowing them to make safe alterations and repairs to aircraft of both a major and minor nature. CAM-18 should be so written that it allows an interpretation without confusion.

"STC should be greatly minimized else we get back to one of the basic requirements that a regulation must meet. That is, is it workable? When an STC is required, CAA should recognize the nature of the repair station business and provide engineering service which can grant final approval without undue delay. We should have no objection to having such final approval made by the designated engineering representative. In fact, it would seem that this should be his function. If regulations cannot be worked out to permit properly certificated shops, AI's and DER's to act on their own experience and ability, then there is little point in having these ratings."

The AEA meeting was also highlighted by equipment discussions with manufacturers, discussion of advantages offered by uniform aircraft radio systems wiring diagrams and a review by Clyde Angel of the CAA in Washington of efforts eventually to enforce minimum aircraft radio and electronics requirements for aircraft operating on IFR clearances. Notice of a proposed revision to the CAR dealing with this accompanies this article. Angel, who has worked closely with the shops in their organizational efforts since last fall, reported steadily increasing numbers of radio service facilities all over the country. There are now a total of 136 certificated electronics service shops, their distribution being widespread, of which almost 100 are available to transient aircraft traffic — the remainder being shops of airlines, manufacturers and others not usually available to transient aircraft. There were no CAR provisions for radio service ratings prior to 1953 and since then CAA has delayed rigid enforcement of regulations until approved facilities became available in all areas to most aircraft users. Complexities of modern IFR operations and radio-electronic equipment for IFR operations, however, are forcing an eventual crackdown to assure minimum standards for equipment and servicing. There are over 100,000 certificated aviation mechanics but only a relative few are also rated for radio-electronics maintenance.

The Aircraft Electronics Association voted to hold its next annual meeting April 23-24, 1959, in Miami.

Industry leaders registered at the Dallas meeting were as follows: George E. Darsey, Sperry; Earl W. Springer, Springer Radio; Lee J. Lanford, Tony Aguilar and Carl Fox, Associated Radio; C. McAtee, Pete Rogers, G. L. Aldrich, Jay Ahmann, Lloyd Schuh and H. A. Wolf, Bendix Radio; Bill Viscarra, Flite-Tronics; Wes Fielding, Bayaire Avionics; George Matthews, Charles Latham and A. W. Everly, Matthews Electronics; Gene Baker, Chamberlain Aviation; Thomas F. Aubry, Ohio Aviation; T. J. Clark, Illini Aviation & Sales; Lyn Hampton, Atlantic Aviation; Harry Shulman, B & H Aircraft; Walter Ewing, Sanders Aircraft; T. H. Gipe and Ralph Good, Capitol Aviation.

L. M. Lentz and W. B. Newton, Southern Airways; L. A. Hamilton and R. D. Moore, Allied Instrument; Norman Brumbaugh. Norman Radio; Gene Panissidi, Qualitron; Charles O. Peacock, Aircraft Radio & Accessory; Phil Stomberg, Minnesota Airmotive; Tom Price, Dot Airtronics; Everett Kriese, Aviation Radio; D. R. Anderson, Anderson Aircraft Radio; Herman Miller, San Jose Avionics; Carl Schroeppel, Skymotive; Joe Munizza, Mid-States Aviation; Bob Tolfer, Aerotron Radio.

Cal White, Airmar Radio Service; John Russell, Butler Aviation; Charles Melville, Reading Aviation Service; Robert O'Connor, E. Farnell & Co.; Tom Farrell, Max Harris, C. L. Pfeiffer, E. C. Christerson, E. C. Whittaker and J. P. Knowles, Collins Radio; Fred Karpurk, Aero Air; Charles B. Shaw, Airborne Communications; Robert Van Zandt, Orin (Moose) Redhead and Leo Brougham, Wilcox Electric; Chuck Huston, Lear; Joe Genne, General Aviation Supply; Tom Wallace, Don Rader and Ned Bishop, Wright Airborne Electronics; R. W. Scott, Continental Radio.

Elliott Polansky and George Sutton, Dare Radio; J. E. Ball and R. B. Nelson, Technical Enterprises; Don Humphreys, McMillan Industrial Corp.; R. H. King, Hawthorne Flying Service; Johnny Miller and Les Elmore, United Airplane Sales; Bruce G. Rich and Sam Thompson, RCA; Jack Gailey, Executive Aircraft Electronics; H. S. Christensen, Aircraft Radio Corp.; Gil Quinby, Narco; Clyde S. Angel, George Sackett and H. D. Odneal, CAA, and Robert W. Finklea, attorney.—T. A.

Proposed IFR Requirements for Aircraft Electronics

THE Civil Aeronautics Board's Bureau of Safety has issued Draft Release No. 58-5 proposing the application of minimum performance standards for eletronic equipment carried by all aircraft operating under IFR weather conditions. Industry comment is requested by or before May 26, 1958.

"It is essential," the draft release says, "that reasonable insurance exists that aircraft will be so equipped that the pilot can accurately determine his position in order to permit effective air traffic control. This can best be accomplished by requiring that electronic radio communication and navigational equipment used in these operations be approved by the Administrator, meet uniform standards of performance and be in proper operating order. The CAA has recommended that all electronics radio communication and navigational equipment used in IFR operations be approved by the Administrator as to minimum performance standards and that all major repairs and alterations made to such equipment be performed by a certificated radio repair station."

A period of two years from the date of the proposed requirement would be allowed for the replacement or modification of unapproved equipment.

IT'S HERE NOW...

An All Transistor Autopilot For Your Aircraft

MITCHELL AUTOMATIC PILOT

The most significant electronic advance in the last 10 years — Now comes to private and business aviation with an all-transistor autopilot system that has won the acclaim of every pilot who has flown it.

CHECK THESE FEATURES . . .

- Light Weight (8.2# installed)
- Simplest Installation
- 3-Directional
- Smoothest & Most Dependable
- One Degree Accuracy
- Low Power Drain—1/10 amp at quiescense
- One year Guarantee
- Low Price: $2425.00

CAA Approved For: Apaches, Bonanzas, Cessnas 172—180—182, Navion, Twin Navion, Comanche, (Pending: Cessna 310, Twin Bonanza, Aero Commander & Travelair)

Mitchell Automatic Pilot

Authorized National Distributors • Contact your Dealer for Demonstration

GENERAL AIRCRAFT SUPPLY CORP.
City Airport, Detroit, Michigan

AVIATION SUPPLY CORP.
111 South Franklin St., Tampa, Florida
Municipal Airport, Atlanta, Georgia

THE DON HORN COMPANY
Box 3736, Lamar Station, Memphis, Tennessee

GENERAL AVIATION SUPPLY COMPANY:

Lambert Field
St. Louis, Missouri

Will Rogers Field
Oklahoma City, Oklahoma

Love Field
Dallas, Texas

Sky Harbor Airport
Phoenix, Arizona

Municipal Airport
Houston, Texas

JET TRAINING

(Continued from page 27)

craft and even space vehicles when they are available," commented Lt. Col. Elmer L. Masters, Bainbridge Air Base commander.

The 17 graduating students were to proceed from the T-37 to the more advanced Lockheed T-33 at Laredo Air Force Base.

Hugh W. Davis, general manager of the Southern Airways contract school at Bainbridge, said his civilian instructors as well as the Air Force students were impressed with the T-37's twin-engine safety factor and its performance on one engine. He said maintenance personnel had no more difficulty with the T-37 than with phasing into a new piston-engine aircraft. He said the Continental J-69-T-9 jet engine is less complicated than the piston-engine in the North American T-28 which the T-37 is replacing. The overall T-37 aircraft is relatively easier to maintain, he added. Over 50 T-37's are now assigned to Bainbridge. This number will be doubled.

COPTER CRANES

(Continued from page 29)

sections of steel towers into the remote mountain area, the copters had to plant them atop foundations with precision. They also carried wooden poles which they lowered gently with accuracy into holes already dug for them. This way the copters replaced conventional means of lifting and planting the heavy poles and tower sections.

Rotor Aids, Inc., of Ventura, California, furnished the helicopters and crews. On one job, located 30 miles northwest of Santa Barbara, an S-58 planted 63 poles down a steep, almost inaccessible mountain slope — a job which would have required 65 days by conventional methods. The cost averaged out about $70 a pole in contrast with $250 a pole using manpower and block-and-tackle methods.

On another Edison job, a transmission line was built by copter entirely without the use of access roads. Men and equipment were flown in first to clear each tower site and dig foundation holes. Cement hoppers were then airlifted to the sites for receiving the concrete loads. Buckets of one-half-cubic-yard capacity and having rubberized sleeves were dangled beneath the copter and carried enough concrete for the four footings of each tower, pouring it in about 20 minutes — a job normally requiring an entire day using ground crews alone. Then the steel sections were airlifted in.

The S-58 used in the latest California power company jobs has a useful load of 5,140 lbs. at a gross weight of 12,700 lbs. It is powered by a 1,525-hp. piston engine.

GENERAL AVIATION

(Continued from page 37)

any one of the air space users can possibly last. It is the substance of the regulations and the nature of the control system as they affect the *reasonable* usage of our kind of airplane that we should be concerned with.

In the General Aviation Facilities Planning Group we have the machinery and the vehicle for organizing an entire structure of recommendations that will encompass regulations, airport development, en route facilities and sensible definitions of what constitutes VFR and IFR and who should have access to what facilities on what basis. Every general aviation pilot should be a member of one of the GAFPG organizations during this critical time. Then, through GAFPG we can, as organizations or as individuals, forward our organized views to the place where it will do the most good — to the people who are going to have the power to write the book on how the air will be used in the next 30 years. Regardless of our individual disagreements on whether VFR should be 3 miles or 5 miles or 2 miles, or whether there should be complete control of all traffic above 24,000 feet or 20,000 feet, there is perhaps one principle to which we can all subscribe and against which we can evaluate any recommendations that we might make; namely, *that the needs of individual people should have at least equal consideration with the requirements of any organizations engaged in air transportation for profit.*

The practical meaning of this principle is that people of average pilot ability and experience in smaller airplanes with limited radio should be permitted to fly anywhere when it is VFR without filing a flight plan with anyone.

If the airlines have a problem that can only be solved by controlled separation at all times because, due to high speeds and restricted cockpit visibility, they cannot be held accountable for flying on a see-and-be-seen basis, then it is suggested that they adapt to the see-and-be-seen requirements whenever they are operating on a right of way that is shared by small aircraft. In other words, when they get down into the levels below 20,000 feet and into congested terminal areas where general aviation aircraft are flying, they should be required by law to (a) slow down and (b) look out the window in VFR conditions. If it is their desire to fly under en-route-controlled-separation conditions at high altitude without see-and-be-seen responsibility — fine. When they get on the commonly-shared right of way, they should be required to observe limitations imposed by the capabilities of other people sharing that air space.

It must never be the case that people with limited capabilities have to get out of the air space to accommodate the professionals right down to the end of the runway. The survival of the private citizen in his smaller personal airplane with limited radio equipment is contingent upon the acceptance of this basic principle and philosophy. We, in general aviation, should work for a widespread and reasoned acceptance of this philosophy and principle. We, as a group, should seek assurances and guarantees that this principle is taken into consideration in whatever is done during the critical period coming up. At the same time, we should bring up specific proposals for consideration that will implement this principle. Then, we can perhaps succeed in creating a climate that will encourage a tremendous growth in the usage of small aircraft by more people. Of course, once this growth reaches the proportions that it can reach with the proper regulations and facilities, we can all quit the crusade, and indeed, go about our business as private citizens using our airplanes with freedom, secure in the knowledge that no one is about to take away our fundamental right to free usage of the air space.

Airmen's Calendar

April 14-16—51st General Conference, Federation Aeronautique Internationale (FAI), Ambassador Hotel, Los Angeles.

April 16-19—14th American Helicopter Society National Forum, Sheraton-Park Hotel, Washington, D. C.

April 24-27—Flying Physicians Association's Phoenix Spring Cruise, Valley Ho Hotel, Scottsdale, Arizona.

May 4-7—American Association of Airport Executives and California Association of Airport Executives Meeting, Fresno, California.

May 16-18—Texas Private Fliers Convention, Baker Hotel, Mineral Wells.

May 16-20—16th Annual Miami-Havana Air Cruise, sponsored by Florida Air Pilots Assoc. Contact James G. Pace, Cruise Director, 310 SE 2nd Ave., Miami, Fla.

June 14—Air Mail Pioneers 40th Anniversay Ball, Beverly Hilton Hotel, Beverly Hills, California.

MOONEY MARK 20-A

(Continued from page 26)

pellent and found it quite effective. There were very minor icing conditions in the Austin area and we sprayed the silicon base repellent on one-half the windshield, the propeller and the leading edge. Sure enough a little ice formed on the untreated section of the windshield. Glidden claims better than three hours protection with their fluid.

Our airplane was the 208th Mark 20 series turned out thus far by Mooney. With a live-wire sales organization of some 30 distributors, production is all sold out through August. An expansion program started last year is beginning to pay off and production is now at the rate of one airplane every two days. By August this will be increased to one plane a day. The amazing thing about this up-and-coming company is that only 135 direct production workers will be involved in the plane-a-day schedule.

Herb Anderson, production manager who has never missed a predicted schedule since coming with Mooney a couple of years ago, pointed out 22,000 square feet of additional factory space that now permits Mooney to turn out about 95 per cent of their manufacturing processes. They do all their aluminum forming, plexiglass forming, sheet metal working, upholstering and foundry work. Only a few specialized machined parts are sent out of the factory. We've never seen a more realistic commercial airplane plant, unless it was the old Aero Design and Engineering Company's operation (before the 1957 fire) which also deserved a medal for maximum production with minimum space and workers.

"We've got to keep costs down in this business," says Hoffman, "and we can't do it with a high-overhead, fancy factory." It's a real inspiration to walk through the Mooney operation and see this fundamental goal being realized.

A part of the expansion program includes a completely new customer service building. Perhaps one key to the efficiency story may be found in the fact they are not turning out anything for the military. We did learn that the Army looked at the Mark 20-A as an instrument trainer and has asked the company to get an "I" designation for this model. But again, as in the case of Aero Design, any purchases will be "off the shelf" and not geared to the military's way of doing business.

What's in the future at Mooney as far as new models? Plenty. They have made the decision to put a 270-hp. Lycoming 6-cylinder engine in the same basic design. This will give them better than 200 miles an hour at 10,000 feet and a price under $20,000. Also the larger engine will call for a roomier cabin structure and will up the gross weight and useful load. Most newsworthy was our peak at the Mooney twin, now nearing the completion stage and soon to undergo taxi tests. Powered with two 150 Lycomings, this sleek little job will eventually mount two 180's. They are shooting for a price tag of around $30,000. A staff of recently hired sharp engineers are rushing this job to completion and it should be flying by June 1. If Mooney can hit their mark in performance and price, here's a light twin that will surely make some eyes pop and add more healthy fuel to the competitive fire in this part of the market.

A couple of years ago crepe hangers in commercial aviation — those self-appointed experts who seem always to have things figured out — were predicting the demise of the Mooney operation. President Hal Rachal and his partner Hoffman just aren't the type to buy into a failure. In 1954 Mooney was on the rocks. The one and only investor, Charles G. Yankey of Wichita, who had backed many a Wichita plane maker, died right at the time experimental work on the Model 20 was being finished. Yankey's heirs wanted no part of the airplane business. Bankruptcy was inevitable. The writer will not soon forget that day in June, 1954, when Al Mooney headed for the attorney's office with official papers for voluntary bankruptcy. These were destroyed a few days later after Rachal and Hoffman flew the prototype.

It's been a slow, hard pull. The creditors have been paid off, new investments made in plant and facilities, in engineering and in equipment. Last year they emerged into the black ink and this year things are booming with production rolling and orders coming in as more and more pilots see, hear about and fly the amazing Mark 20. While Hoffman is vice president for sales and made an incredible record the last couple of years almost single-handed accounting for all sales, setting up distributors and dealers and helping with management all at the same time, he's now ably assisted by Sales Manager Dick Martin at Kerrville. Bill Mullen is western regional sales manager and O. J. Miller is eastern regional sales manager. Bill Wyatt will soon take over the central regional sales, probably after his round the world flight in June.

If you're bothered with recent economic recession talk and are in need of a good tonic, we urgently suggest a trip to the Mooney factory as a guaranteed cure for the blues. While Mooney isn't making any claims for membership in the Majors, they are moving up fast and we're making book it won't be too long until you'll hear people number Mooney among "the big five or six" in the utility airplane field.

Mooney Distributors and Dealers

Arizona — Powers Aviation, Air Haven Airport, Phoenix; Arkansas — Jonesboro Flying Service; California — Bemac Flying Service, San Mateo County Airport; Cloverleaf Aviation, Santa Monica Airport. Colorado — Nolan's Aircraft Sales, 1700 21st Ave., Greeley. Florida — Exec-U-Plane, Inc., Broward International Airport, Ft. Lauderdale; Normandy Flying Corp., Herlong Field, Jacksonville.

Georgia — Hills Aircraft Sales & Service, Fulton County Airport, Atlanta. Illinois — Howard Aviation, Mt. Hawley Airport, Peoria. Indiana — Harvey Aircraft Sales, Elkhart Northside Airport. Iowa — Airways Service, Sioux City Municipal Airport. Kansas — Corn Belt Aviation, P. O. Box 324, Ottawa. Michigan — Skylark Flying Service, Detroit City Airport. Minnesota — Wilmar Air Service, Wilmar Municipal Airport.

Missouri — Executive Aero Distributors, Cape Girardeau Municipal Airport. North Carolina — Southeast Airmotive, Douglas Municipal Airport, Charlotte. New Jersey — Thor Solberg Aeronautics, P. O. Box 350, Sommerville. Oklahoma — Air Lines, Inc., Brown Airport, Tulsa. Pennsylvania — Myers Aviation, Leechburg Airport. Texas — West Texas Flying Service, Midland. Utah — Midwestern Aviation Corp., 3200 W. 2100 South, Salt Lake City.

Vermont — M & M Co., Box 28, Bellows Falls. Virginia — Frantz Flying Service, Woodrum Field, Roanoke. Washington — Travel Air Inc., Walla Walla City-County Airport. Wisconsin — Watertown Aviation Co., Watertown Municipal Airport. Canada — Frank Ogden, Island Airport, Toronto. Europe — G. Tranchant & Cie., 4 Avenue de l'Opera, Paris. Mexico — Cia Impulsora de Venta de Automoviles, Gral. Prim 50 y 52, Mexico City. New Zealand — Petersen Aviation, Heretaunga St. West, Hastings. South Africa — Safair, Ltd., P. O. Box 20, Pretoria. South America — Sergio Navarrate y Cia., Edificio Britannia, Alameda 552, Santiago, Chile.

HERE'S THE SIGN OF THE FINEST SERVICE FOR YOUR PIPER AIRPLANE

Piper has established a world-wide network of Factory-Certified Service Centers to assure you of the finest service possible for your Piper airplane.
To earn the coveted designation, service organizations must meet rigid requirements, must be properly equipped and staffed by personnel who have attended the intensive service school conducted at the Piper plant. Dozens of Piper Factory-Certified Service Centers have been established throughout the nation and around the world, and more are being designated to assure convenient and competent Piper service wherever you may wish to fly.

FOR THE BEST IN PIPER SERVICE AND MAINTENANCE VISIT THE PIPER FACTORY-CERTIFIED SERVICE CENTERS LISTED BELOW

ANDERSON AVIATION CO., INC.
Sky Harbor Airport
P. O. Box 5175
BRidge 5-5741
Phoenix, Arizona

ATLANTIC AVIATION SERVICE, INC.
Philadelphia International Airport
P. O. Box 5318
SAratoga 6-7500
Philadelphia, Pennsylvania

AVIATION SPECIALTIES COMPANY
Gallup Municipal Airport
P. O. Box 1241
UNion 3-3621 *UNion* 3-5394
Gallup, New Mexico

BROWNING AERIAL SERVICE
Municipal Airport
P. O. Box 1173
HOmstead 5-1728
Austin, Texas

ELLIOTT FLYING SERVICE, INC.
Davenport Municipal Airport
P. O. Box 418
2-2689
Davenport, Iowa

EXECUTIVE AIRMOTIVE, INCORPORATED
Stewart Air Park
P. O. Box 70
GArfield 8-3581, *GArfield* 2-7277
Parkersburg, West Virginia

GILLIS FLYING SERVICE
Logan Airport
P. O. Box 2098
2-2288
Billings, Montana

GREENSBORO-HIGH POINT AIR SERVICE, INC.
Greensboro-High Point Airport
Post Office Box 8237
BRoadway 5-6407, *BRoadway* 5-6408
Greensboro, North Carolina

J & J AIRCRAFT, INC.
Sarasota-Bradenton Airport
821 *General Arnold Road*
ELgin 5-6868
Sarasota, Florida

KEN-MAR AIRPARK, INC.
Ken-Mar Airpark
Box 2667, *University Station*
MUrray 3-6589
Wichita, Kansas

LOUISIANA AIRCRAFT
Downtown Airport
P. O. Box 1428
WAlnut 1-9618
Baton Rouge, Louisiana

OKLAHOMA AIRCRAFT SALES CO.
Ponca City Municipal Airport
P. O. Box 709
ROgers 5-3375
Ponca City, Oklahoma

RED AIRCRAFT SERVICE, INC.
Broward County International Airport, Building 78
JAckson 3-9624
Fort Lauderdale, Florida

SKYMOTIVE, INC.
O'Hare Field, Chicago International Airport
Chicago Telephone NAtional 5-6969
P. O. Box 448, Park Ridge, Illinois

SOUTHERN FLIGHT SERVICE, INC.
Douglas Municipal Airport
P. O. Box 1211
EXchange 9-6374
Charlotte, N. C.

SPARTAN AIRCRAFT COMPANY
Aviation Service Division
Tulsa Municipal Airport
TEmple 5-4491
Tulsa, Oklahoma

ST. LOUIS FLYING SERVICE
Lambert Municipal Airport
Box 6067, *Lambert Field Station*
PErshing 1-0450 & *PErshing* 1-1770
St. Louis, Missouri

UP where performance counts

OUT where the fields are short and rough

YOU can count on the *Tri-Pacer*

The 1958 Tri-Pacer is a rugged, heavy-duty airplane built to take punishment on the ground, designed and powered for top performance in the air.

With optional 150 or 160 horsepower, the Tri-Pacer has far superior flight performance. At low altitudes or up high, it has better climb, far greater cruising speed—over 130 miles per hour—better performance in every respect than any other plane in its class.

You're far safer in rough fields with the Tri-Pacer, too. The big nose wheel—same size as the main wheels—takes care of that.

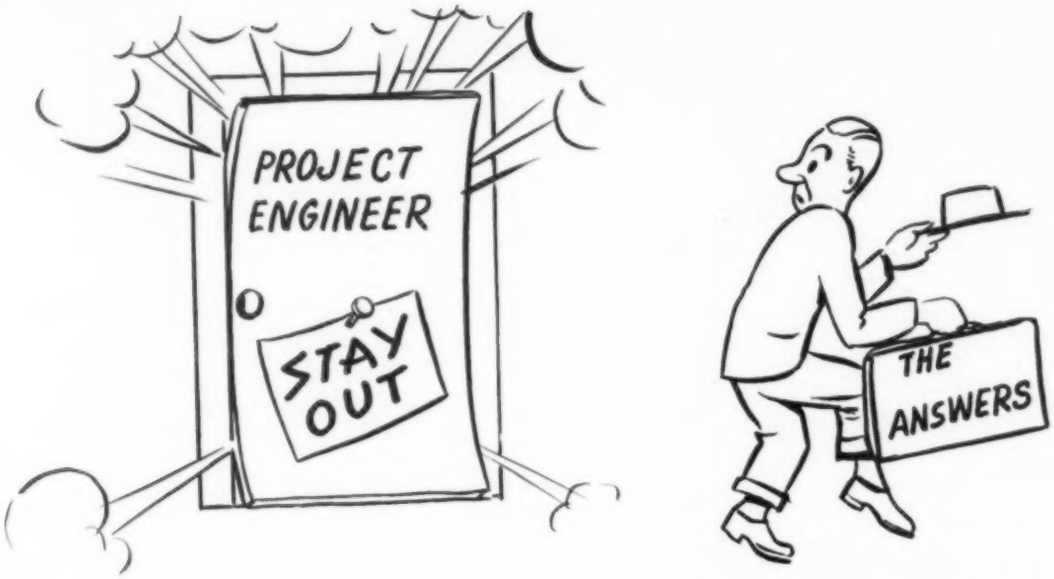
These great features—superior flight performance and rugged design—are the key factors in the choice of any airplane. Consider the other great features of the Tri-Pacer and your choice is automatic—incomparable Lycoming power... Hydrasorb, tricycle landing gear... simplified, interconnected controls... simple, single hand brake... separate doors, with big rear door for loading bulky freight... up to 600 pounds cargo capacity... outside baggage door—all at hundreds of dollars less. See and fly the wonderful new 1958 Tri-Pacer at your Piper dealer's or send for brochure, Dept. 4-F.

PIPER

AIRCRAFT CORPORATION
Lock Haven, Pennsylvania

Capital-conserving lease and finance plans available.

MORE PEOPLE HAVE BOUGHT PIPERS THAN ANY OTHER PLANE IN THE WORLD



Neophobia In Aviation

An iconoclast probes aviation's soft spots to deplore its resistance to change

By WILLIAM P. LEAR

ALL of us, sitting comfortably in our twentieth century observation towers, can easily understand the reluctance to change in other forms of transportation. Someone once wrote with a shaking hand, "Man cannot survive at the breath-taking speed of sixty miles per hour." When reading about the history of ships at sea, one frequently encounters the sailing ship captain, an obstinate old salt, who bellows, "Man and boy, I've sailed the seven seas; the steam engine will never replace our reliable, foolproof sails."

It follows quite logically that the same attitude prevailed during the early days of the railroad. Many railroaders clung stubbornly and blindly to their steam engines even after diesel engines became a very definite part of the pattern of progress. Within the last forty years, our "modern" ship captain refused to believe "Sparks," his radio operator, who told him that the wireless direction finder indicated they were about to pile up on the rocks. Like his predecessor, the sailing captain, he vehemently rejected the "new invention"; alas, within a few moments the instrument undeniably proved its reliability.

And so it goes — progress moves on.

Are we different today, we who make up the aviation industry? Are we ever ready to accept new ideas and modern equipment? Have we profited by experience? No, we are not different; we have not profited. Today the pilot who has logged thousands of hours in the air is as satisfied with his present equipment as the old ship captain was with his.

Neophobia is as prevalent in aviation today as it was in other forms of transportation. It exists, not only in the mind and heart of the pilot, but also in the engineer, the manufacturer, and aviation executive.

An attempt to simplify an instrument today is met with protest, derision, and condemnation. The "Neophobites" scream lustily that it reads backwards; it's all wrong, it's not like the instrument we've been flying all our lives. The unalterable fact is that *they have been using an instrument that actually reads backwards.* The proof of the fact that this instrument is hard to read and adjust to, lies in the knowledge that the pilot must either keep in practice or take refresher courses frequently so that he does not forget how to use it — unnaturally or backwards.

This new instrument, which is so easy to read and follow that one can learn to fly on instruments in minutes instead of weeks, is backwards because it is new. The oldtimers who now fly the hard way feel they would have to relearn to fly if they were to use this instrument. They do not realize that if an embryo pilot can learn to operate this instrument in a few minutes their transition from doing something in an unnatural to a natural manner would take an even shorter time.

Possibly they resent simplification not because it is new and different, but because now everyone will want to fly, and the pilot will no longer be considered a superman because he can fly instruments.

Dare to depart from the straight and narrow of the past and you will discover that Neophobia is rife in aviation. Unfortunately, progress is built on the dead bodies of iconoclasts, but, fortunately, men do exist who are more interested in progress than profit.

One outstanding example of Neophobia was the reluctance of the airlines to accept automatic direction finders. Ten years elapsed before they adopted the aural direction finder, and it took another five years before the automatic direction finder was put into operation.

One prominent airline's operation manager stated he would not install ADF's if he received them gratis, because of the cost due to loss of payload. Today, all airlines, including his, carry two ADF's, just in case one of them fails. He also stated ADF's were unnecessary because his pilots never got lost. Shortly after uttering this unfortunate statement, one of his pilots, carrying a plane load of passengers, circled around for four hours, completely lost. He finally landed, and reported he was in Charleston,

When Time Counts.....

YOU CAN DEPEND ON REED FOR ON-TIME DELIVERY OF YOUR AIRCRAFT

The leading business firms of the nation have relied on the J. D. REED COMPANY for over 25 years for the best in aircraft service, maintenance and overhaul.

And Here's Why

REED'S *Maintenance and Overhaul Shop*

. . . is one of the nation's most modern and complete facilities . . . equipped to handle any job with tools designed for each specific purpose . . . and skilled know-how that comes from long specialized service on all types aircraft.

REED'S *Radio and Electronics Shop*

. . . is a miracle of efficiency with trained technicians to install and service the world's finest navigation and communication systems . . . complete testing facilities are available to check and prove equipment accuracy.

REED'S *Stock of Parts and Accessories*

. . . is maintained at levels to provide a ready availability of all parts that go into any workorder . . . parts and accessories stocked by the J. D. Reed Company are factory approved and fresh from the manufacturer.

REED'S *Engine and Propeller Shop*

. . . is staffed with specialists with an intimate knowledge of their job . . . whether the job is trouble shooting or an engine or propeller installation our detailed attention will assure safe and efficient performance of your aircraft.

With the J. D. Reed Company it's ON-TIME DELIVERY everytime. We invite you to visit our shops to see why we can better serve your aviation needs. You will find us anxious to serve you.

J.D. REED CO. INC.
SALES SERVICE
Beechcraft
DISTRIBUTOR

Telephone OLive 4-4351, Municipal Airport, HOUSTON, TEXAS

AUTHORIZED
Cessna
SERVICE

These Authorized Stations Feature Flat-Rate Service

The Air-Oasis Co.
2601 E. Spring St.
Long Beach 6, Calif.

Aircraft Sales Company
Meacham Field
Fort Worth, Texas

Champ's Aviation, Inc.
Municipal Airport
El Paso and Lubbock, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Cruse Aviation, Inc.
International Airport
and Clover Field Airport
Houston, Texas

Dal-Tex Aviation, Inc.
Highland Park Airport and Love Field
Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Poelman Aircraft Co.
New Orleans Airport
New Orleans, Louisiana

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Kenneth Starnes Aviation Service
Adams Field
Little Rock, Arkansas

Southwestern Skyways, Inc.
Municipal Airport
Santa Fe, New Mexico
and Ogden, Utah

Sunny South Aircraft Service, Inc.
Broward International Airport
Fort Lauderdale, Florida

Walston Aviation, Inc.
Civic Memorial Airport
East Alton, Illinois

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

SERVICE SATISFACTION

SMILING SERVICE is what you expect and always receive when our Authorized Cessna Service Stations solve your maintenance needs! We furnish factory skills, factory equipment and factory satisfaction. Cessnas are our specialty . . . and we follow a policy of giving Cessna users a little more, a little better service — LIKE OUR FAMOUS 1-2-3 CESSNA FLAT-RATE SERVICE!

1 You get an accurately quoted price and time-required quotation based on hundreds of job studies covering virtually all maintenance needs.

2 You get genuine Cessna parts and factory-trained workmanship.

3 You save money and time and we stand behind every job for your fullest satisfaction.

NEW INTERIOR—BIGGEST IN ITS CLASS

The biggest news about the big new Cessna 172 starts deep inside—in the deep-down comfort and rich beauty of its new-for-'58 interior. Here, in this spacious cabin, you'll discover new executive-type styling, new fabrics, leg and shoulder room to spare, relaxing, form-fitting adjustable seats both front and rear, baggage compartment accessible *in flight*—and many, many other comfort features.

It's the roomiest cabin in its class! And that's because the all-metal Cessna 172 is the only *full-size* airplane in its class—with the largest wing, largest tail group, as well as longest fuselage. Two other "big buy" features only Cessna can give you: patented Land-O-Matic landing gear and giant Para-Lift flaps for surer, safer take-offs and landings. Also important: its modern design delivers speeds comparable with other airplanes in the low-price class. Price: $8,995 with std. equip. f.a.f. Wichita. See your Cessna dealer (Yellow Pages of phone book) or write: CESSNA AIRCRAFT COMPANY, Dept. F-24, Wichita, Kansas. Inquire about Cessna Lease Plans.

THE ONLY FULL-SIZE AIRPLANE
IN THE LOW-PRICE CLASS

Cessna

6 GREAT CESSNAS 172 175 180 182 SKYLANE 310 THE COMPLETE AIR FLEET FOR EVERY BUSINESS NEED

only to discover that he was in Tallahassee. An ADF might have saved his embarrassment. This incident is a matter of Congressional record.

Then, consider the airlines' reluctance to use the autopilot, especially the approach coupler. Neophobia, again! Man is a fallible mechanism, a poor servo, an inefficient computer. He cannot be compared with the reliability and precision of a modern automatic pilot flying an aircraft, or making an approach under bad weather conditions.

The problem of reliability can easily be solved by applying the same principle used elsewhere on the aircraft; namely, duality. We have two engines, two propellers, two ADF's, two transmitters, receivers, omnis, two generators, why only one autopilot? All ships in the future will have two autopilots; without Neophobia, it would happen now. It will probably take another decade, unless airline management succeeds in demanding results instead of excuses from its engineering department.

Another contributing factor is that of keeping the pilot in training. It's a sad commentary on safety to train a pilot with a shipload of passengers; there are better, cheaper, and more reasonable methods. Simulators, for instance. One airline president said, "I pay those guys to fly, and fly they will."

Each aircraft is a big business. As soon as a big ship taxis away from the airport, the captain is a manager of a business enterprise worth up to six million dollars, with 80 to 150 lives involved in the successful operation of that business. A business of this size cannot be operated by a chauffeur. It requires a *general manager*, not a clerk keeping records and computing arithmetic problems by long hand. It would be inconceivable to have a general manager, operating a $50,000,000 business, sweep floors, dust desks, keep books, open mail, etc. Yet an airline captain is expected to pilot the aircraft, check weather and fuel conditions, give orders to the engineer, quiet unruly passengers (especially in emergency), give pep talks and travelogs, etc., and sometimes be required to make the final approach under low ceiling.

The captain should be a manager with no tedious, repetitious tasks. When Neophobia is finally overcome, an airline captain will never touch the wheel. The captain of the Queen Mary does not take a turn at the helm; he "manages" the ship. Ultimately, the captain of an airliner will do the same. He will be in a position to observe and advise. Now, the captain makes the final approach, and should he err, what co-pilot would dare correct him, especially if there were no chance of the mistake being fatal? However, the captain could readily exercise his authority if his pilot, or co-pilot, did not approach properly. Furthermore, if he were not required to fly the plane himself, he would be capable of scanning every action and reaction more thoroughly and effectively; his freedom from detail would enable him to observe the over-all operation. When an emergency arises he would be capable of devoting his complete attention to the problem.

Spiral dive has defeated designers for 54 years but they still avoid standard equipment which would end the deadly spiral

Now, let us return to our discussion of the automatic pilot and approach coupler. Here the pilot "manages" the flight and depends upon the automatic pilot to handle the tedious, repetitious details, the close observance of heading, course, altitude, localizer, glideslope, etc. The pilot, unencumbered with menial tasks, is free for the flight duties of navigation, communication, and bird-watching. Yes, bird-watching; it's important to avoid a collision with another "bird." The number of in-flight collisions in clear weather indicates all too clearly that a little more bird-watching would have paid large dividends in lives saved. Let's look outside more, and less at the instruments. This requires either a co-pilot or an automatic pilot; an automatic pilot is more reliable. Now, let us look at the airplane itself and see if we can find Neophobia at work. We will not discuss military aircraft, although a thorough evaluation would prove Neophobia has left its scar in that field for more than a decade.

Let's see what is new in general aircraft; let's look at the new models. New? What's new about them? Improvements? Yes. More horsepower? Yes. Partial pressurization? Yes. Speed? A bit more. Range? Scarely greater. Simplicity? No. Greater efficiency? Some. Why so little change? Neophobia? Emphatically, yes. Could utility aircraft be better in all these ways? Definitely.

Simple, low-cost radio will protect planes from air collisions — when and if aviation wants to make it work

What has happened to make aircraft easier to fly, more foolproof, weather safe? Practically nothing! For instance, attempts to eliminate the spiral dive aerodynamically have resulted in 54 years of defeat. Yet designers continue to approach this problem aerodynamically, even after it has been solved artificially and automatically with a simple anti-turn device. No aircraft now carries this device as standard equipment. Yet this equipment prevents the deadly spiral dive, not only the killer of pilots, passengers, and people on the ground, but of aviation itself in the form of bad publicity and increased sales resistance. This device is available at a ridiculously low cost to the aircraft manufacturer. Why is it not used to provide a safer airplane for novices, a more controllable airplane for experts? Neophobia — resistance to the new.

In the meantime, the needless loss of life and property could be prevented by equipment now perfected and available. Aviation, itself, suffers from the degenerative effect of more weather accidents. We, in aviation, must be mindful of the groundlings, who outnumber us 300 to 1, politically, and their outraged cries against fliers falling from the skies, killing or injuring people, and damaging property. Aviation, as a business, can be badly hurt by laws passed by this vast majority if we fail to make our planes more foolproof.

What have we done about air collisions? Not much! What can we do? We can "brighten" our ships so that day and night we will find it difficult not to see other ships in our vicinity. Luminous "Day Glow" paints could be used more profusely. Each plane should carry a short-range broadband transmitter and have a receiver constantly "on" and tuned to this frequency in order to be instantly alerted if another plane approaches within a distance of ½ mile. Noise is a helpful informant. If it increases, someone's approaching, and we'd best pay 360° attention to where and how. How can everyone receive and transmit on the same wavelength? Easily! A scrambled timer constantly turns the transmitter and receiver on and off alternately, allowing ½ time for listening, the other half for transmitting. The possibility of having one ship synchronize

whatever your transportation requirements, there is an

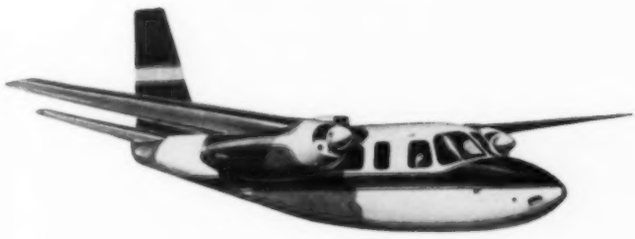
. . . designed to fulfill these requirements

THE 560 E

Short field performance coupled with long range performance

THE 680 SUPER

Recognized leader in speed and performance



THE ALTI-CRUISER

World's finest executive aircraft with pressurization, air conditioning and complete instrumentation

There is an Aero Commander in price range and performance category for the most exacting transportation requirements. A ride will convince you.

BROWN AERO CORP | **MIDLAND AERO CORP**

DALLAS AND TYLER, TEXAS • MONROE, LOUISIANA
DALLAS — LOVE FIELD • P. O. BOX 35124 • FL 1-3990
TYLER — POUNDS FIELD • P. O. BOX 3031 • 2-5389
ONROE — SELMAN FIELD • P. O. BOX 2791 • FA 2-6262

MIDLAND AIR TERMINAL • MIDLAND, TEXAS
P. O. BOX 336 • TERMINAL, TEXAS
MIDLAND, MU 2-8714 • ODESSA, FE 2-7101

its cycling with another is astronomically improbable.

Why not use such an anti-collision device now? It's untried; it's not conventional. And it would have to be universally adopted by all aircraft. It can now be sold at $300 per installation. How long will it take us to adopt it?

High intensity lights for aircraft with billion candle power flashes! Another "too new" invention; but be patient, it will come.

Boundary layer control, ducted propellers, and Dr. Hoerner wing tips are beginning to make their appearance. Why so late? We've known about these aerodynamic improvements for years. Another proof of Neophobia.

The other day a banker remarked, "I'm going to buy an airplane in which to do my traveling; automobile travel is getting too dangerous these days." Upon questioning him as to the type of aircraft he would buy, he stated, "I don't want any of the single-engine airplanes. I've studied the accident statistics and there have been too many engine failures to consider single engined airplanes as sufficiently reliable. What I want is not available — twin-engine reliability with single-engine simplicity of operation." No amount of persuasion could induce him to consider one of the light twins. He "did not want to bother with the additional training required to handle a conventional twin." "Furthermore," he said, "the accident record due to single-engine failure in the light twins is anything but good, due to lack of piloting experience. I don't want to bother with anything that would require more training than a single-engine ship."

This man represents a very large number of businessmen who are potential, new customers, but the aircraft industry has no plane available to meet their requirements. The industry will cry with righteous indignation, "We tried that idea; it didn't work. Look at all the failures!" The answer? They look at the failures too much; they have mesmerized themselves into considering only the failures.

Every failure clearly points out the things necessary for success. A close study of these failures indicates that the answer was close at hand, only a little more ingenuity and persistence was needed. The failure was only in details — not principle; yet the utility aircraft people have given up, not because they believe it cannot be done, but because of their fear to work on anything so radical. It is much easier to make a minor improvement, than

Progress suffers in aviation when we accept minor improvements instead of asking for new and better answers

attempt a brash innovation such as meeting the requirement of twin-engine reliability with single-engine simplicity of operation. Less sales resistance is encountered. Again, we are face to face with Neophobia.

Ninety-nine per cent of all humans are followers; it is the one per cent, the leaders, who must run the risk of unpopularity and bring forth new ideas. These iconoclasts are generally considered intellectual mavericks who ought to be suppressed, usually by the very people, art, and industry they are trying to benefit. Fortunately, they are a hardy lot. The aviation industry has many of these "wild asses of the desert" who could do the job; however, only a few are properly situated to make their ideas stick. In many instances, management cannot see progress because of the profit it might cost them. Their fear of the new is based on the dollar sign. They have to make a profit and any radical departure from conventional design might produce a "flop." The result is minor improvements, instead of major steps forward in the art.

It is well within present day art and ingenuity to develop a light twin-engine aircraft, the size of one of our present four-place aircraft, weighing only 300 pounds more with performance to burn, having 210-mph. cruising speed at 8,000-ft. altitude and 165 mph. on single-engine. It would climb like a "homesick angel," 2,000 feet per minute, and have an excellent single-engine ceiling of 15,000 feet without using expensive supercharged engines.

Light twins with single-engine ease of handling and superchargers driven by exhaust instead of gears — both possible and needed but stalled by Neophobia

The fuel economy would be equal to that of a single-engine ship. As for simplicity of operation, it would not require a multi-engine-licensed or experienced pilot to operate it safely. It would not tend to veer off to one side and turn over on its back due to single-engine failure on take-off or landing, a common fault with present twins of all types. There would be no critical single-engine control speed. As a matter of fact, providing the runway were long enough, it would be possible to take-off from a standing start with one engine dead, an impossible trick with the average twin.

This type of aircraft would tremendously advance the market for business and utility aircraft. Someday it will be available. It could be available today, but for Neophobia.

If a turbo supercharger were added to our present low-cost, reliable, aircraft engine, it would provide ideal operation. Instead, the geared supercharger we have is run directly from the engine, which burns more gas per horsepower per hour. As soon as we catch up with the progress made during World War II, we will learn how to supercharge engines for better altitude performance without increasing either the engine cost or the fuel consumption.

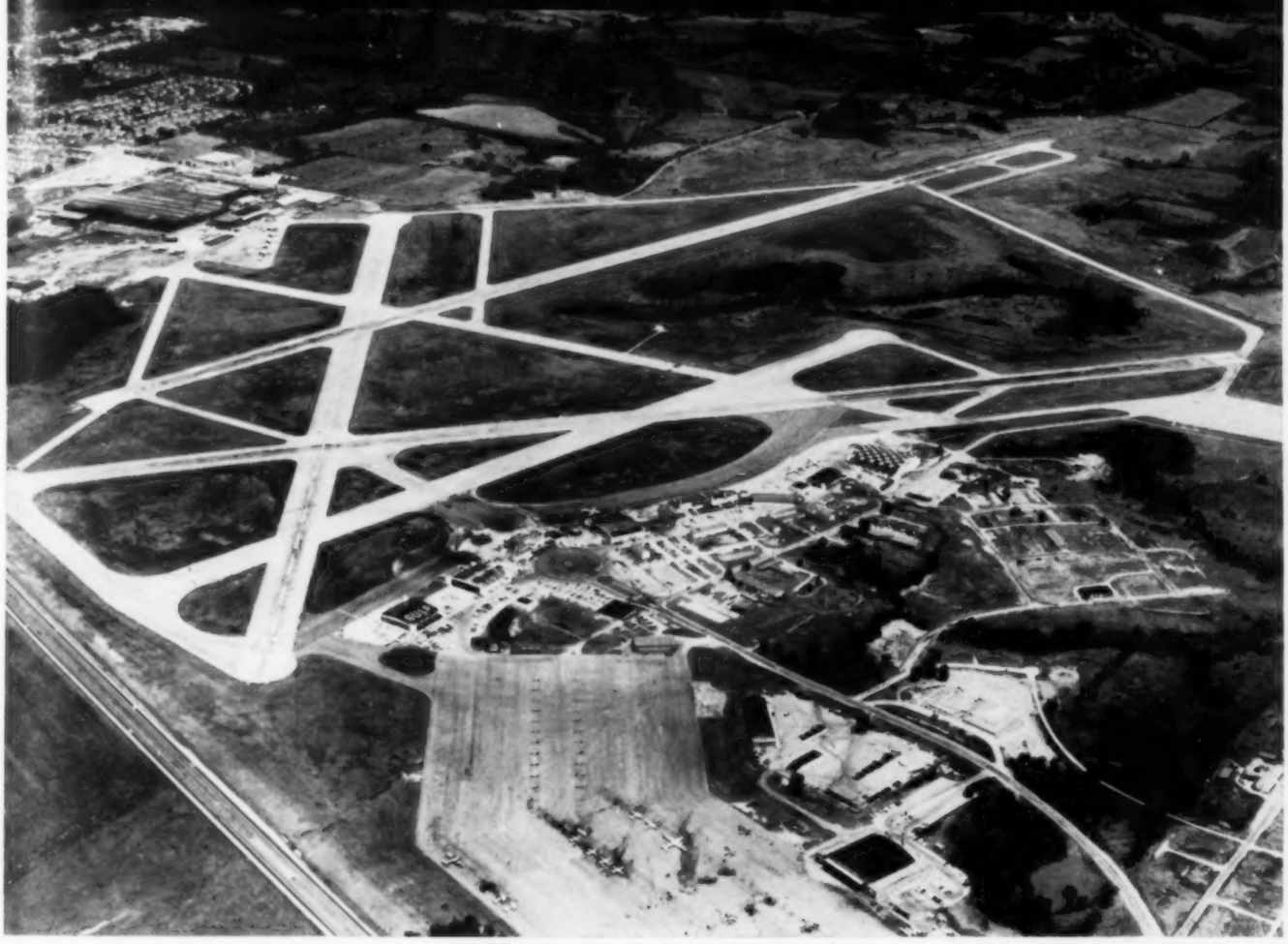
All engines have a tendency to "lean out" and suffer from power loss at high altitudes, where more horsepower is desirable. To overcome this condition, a supercharger is added to increase efficiency and maintain power. However, when the supercharger is directly coupled to the engine, there are many inherent drawbacks, mainly, increased fuel consumption and horsepower loss when the engine and supercharger are not operating at ideal conditions. Although more power is derived from the directly coupled supercharged engine, the operating conditions are still not ideal.

Conversely, let us take a page from the past. We will see that by using energy from the exhaust, where it is wasted anyway, the supercharger can be run at high altitudes, where it is really needed. It need not clutter up the beautiful, simple, reliable, efficient, and low-cost aircraft engine at sea level where it is not needed. This was done on the B-17 bombers, why not do it now? If some aircraft manufacturer had adamantly demanded this design, it would now be available and in use in all modern aircraft, and even be retrofitted into older models.

The industry must take a much broader view in regard to retrofitting

Test your memory

Can you name this airport?



Clue: *The state capital city it serves is on the Cumberland River. (Answer below.)*

Now test your aviation-oil memory: Do you remember these important reasons why Gulf oils are better for your engine?

1. In addition to providing efficient, thorough lubrication, Gulf aviation oils help keep engines *clean*—and safe!

2. Gulf-clean engines can go longer between overhauls, because there's less wear and tear on engine parts.

Choose either new Gulfpride Aviation Oil Series D, the detergent oil, or Gulf Aircraft Engine Oil, the straight mineral oil. Either way you'll be keeping your engine clean and playing it safe.

The airport? It's Nashville's Berry Field, six miles southeast of the city, 5 paved runways, longest, 7,000 ft.

Here, you'll find that good Gulf Service under the supervision of Ed Jones, president, Nashville Flying Service, Inc.

The world's finest GULF *aviation products*

AVIATION PRODUCTS

older models to bring them up-to-date in efficiency and reliability. At present, aircraft manufacturers are more interested in selling a new plane than modernizing an older model. However, a thorough study of the situation might reveal that in the long run more substantial profits could be made from the sale of retrofit equipment. Reciprocally, if a manufacturer concerns himself with his customer's welfare, the customer will give preferential consideration to the manufacturer's equipment when he purchases a new airplane. Only one customer in ten seeking retrofits can be forced into purchasing a new plane. Does the sale of this plane justify the profit lost in refusing to retrofit the other nine? Does it justify dissatisfied customers?

Obviously, the sale of a new plane is desirable. However, there is pride, joy, and satisfaction in owning something new, and the man who ardently desires a new airplane will purchase one even though his old plane can be modernized to look almost as good as new. Contrarily, when a man lacks the desire, or the funds, to buy a new airplane, he strongly resents the uncooperative attitude of the industry and the unavailability of equipment which could modernize his craft and provide greater efficiency, performance, and reliability. The present attitude of the utility plane people is short-sighted. A reversal of this attitude would increase profits, now, and would in time create a healthier situation throughout the industry. This is myopia, not neophobia. Perhaps some manufacturer will introduce a retrofit turbo-supercharger. If he does, watch his cash register ring, and then, watch that smile!

JET AIRLINE SERVICE WON'T BE LONG NOW as Boeing at Seattle nears heavy flying schedules for CAA certification with first production airplanes. Here's first Boeing 707 for Pan American World Airways, showing PAA's new markings and Boeing 707's multiplicity of small windows. Pan American begins receiving deliveries late this summer. American Airlines will probably begin its first Boeing 707 transcontinental non-stop schedules in January after its deliveries start in November of 1958.

Flight Magazine Salutes:

★ ★ ★ **JIMMY MATTERN,** Burbank, California, whose untiring efforts for the OX-5 Club has given the California Wing the largest membership in that fast-growing organization.

★ ★ ★ **TIME MAGAZINE** for an authoritative and complete round-up of business aviation, beautifully illustrated with color photographs, in its issue of February 17.

★ ★ ★ **HOLY CROSS EPISCOPAL CHURCH** in Sanford, Florida, whose policy when a jet flies over the church during services, making noise so that everything is drowned out, is: "We will stop and everyone in the Church will bow his head and say a silent prayer for the pilot and his crew. Here at Holy Cross we understand that these men are protecting our country."

★ ★ ★ **THE HOUSTON POST,** which has inaugurated a weekly page on aviation in its Sunday edition, with emphasis on utility airplanes.

★ ★ ★ **JACKIE COCHRAN,** whose boundless energy and personal generosity resulted in the 51st general conference of the Federation Aeronautique Internationale (FAI) coming to the United States this month, bringing delegates from 45 nations, seven of which are "iron curtain" countries, including Soviet Russia. Theme: The Humanities of Aviation. President Eisenhower was to greet them at the White House April 9 prior to their departure for the conference in Los Angeles.

★ ★ ★ **LOCKHEED'S JETSTAR,** pure jet utility transport, for flying non-stop from California to Atlanta, Georgia, last month in 3 hours and 29 minutes, a 2,000-mile flight with 1,650 pounds of fuel in reserve or over 15 per cent of the total fuel.

JETSTAR POINTS THE WAY

(Continued from page 23)

signed to replace slower piston-powered utility aircraft in such military roles as navigator-bombardier trainer, electronics counter-measures trainer, airway and air communications system plane, high-priority cargo carrier, high-priority personnel carrier and aerial photographic and mapping plane.

A. Carl Kotchian, Lockheed vice president and general manager of the Georgia Division, says the JetStar as a replacement for slower piston-powered utility aircraft will save the government "millions of dollars annually." This is true, he explained, because the 600-mph. JetStar "can do the work of three of the slower propeller-driven planes now performing similar military missions." The armed services therefore could reduce the number of utility cargo aircraft by two-thirds and improve the combat readiness of its crews at the same time, he said.

For a 1,500-nautical-mile trip, and based on 600-hrs.-per-year utilization, without including crew cost, depreciation or insurance, comparative costs have been cited by Kotchian using a modified Air Transport Association costing method. His figures show the JetStar compares as follows:

	Cr. Spd., mph.	Cost, per mi.	Cost, seat-mi.
JetStar, 10 seats	506	0.264	0.026
Piston Twin A, 10 seats	161	0.571	0.057
Piston Twin B, 10 seats	181	0.588	0.059
4-engine Piston Transport, 10 seats	196	0.928	0.093

Hourly maintenance cost comparisons by Kotchian are as follows:

	Depot Maint.	Base Maint. Labor	Base Maint. Material
JetStar	$28	$14	$5
Piston Twin A	27	28	5
Piston Twin B	30	32	6
4-engine Piston Transport	46	58	9

PAINT
FOR
AIRCRAFT

FINISHING

Above, experienced airplane painters are applying the finishing touches to an Aero Commander. This brown-and-white design is a Downtown Airpark original. The pictures to the right demonstrate some of the steps taken in reaching this finished product.

THIS IS DOWNTOWN AIRPARK

Paint Headquarters for Airplanes

The painting of an airplane is both an art and a science. An airplane is often exposed to weather conditions as nothing else is. The paint job must be able to withstand punishment from extreme heat, cold, ice, rain, and dust. Special care must be taken in preparing the airplane for its paint. Only the finest grade of Dupont hot enamel is used by Downtown Airpark. The airplane owner may choose from a variety of available paint designs, or specify his own. When requested, Downtown will create an original design, as in the picture above, using any colors or combination of colors. The final result from Downtown Airpark's paint shops is always the most durable, beautiful, and economical paint job obtainable anywhere . . . and in record time. The customer list at Downtown Airpark includes business and private owners from throughout the United States and in many foreign countries.

FIRST

A protective alodine solution prevents metal corrosion, insures maximum paint adhesion.

HOT

Then a prime coat is applied, followed by two coats of hot enamel for a smoother, glossier surface.

TRIM

Careful masking precedes the spraying of each trim color.

"JUST 5 MINUTES FROM DOWNTOWN"

DOWNTOWN OKLAHOMA CITY *Airpark* INCORPORATED

OVERHAUL & REPAIR • PAINTING • METALWORK
AERO COMMANDER & LYCOMING DISTRIBUTOR FOR OKLAHOMA

1201 S. Western ● MElrose 4-1456
Oklahoma City, Oklahoma

EXTENSIVE BEECH MODEL 18 MODIFICATIONS have been performed by Spartan Aircraft's aviation service division at Tulsa for C. L. McMahon, independent oil producer. They included horizontal stabilizer angle of incidence change and new wing tips for improved stability, rate of climb and range and minimum single-engine control speed reduction from 104 mph. to about 94 mph. Other Spartan work included installation of two large picture windows and five standard windows; enlarged cabin area with better cabin-cockpit passage; skylights over cockpit; metal flap coverings, and new custom card tables with frosted walnut tops.

—(Spartan Aircraft Photo.)

SIDEWALL INFLATION for tubeless aircraft tires eliminates valve stem through rim in new Goodyear development tested extensively on Chance Vought Crusader. Mechanic inserts inflation needle through rubber valve in sidewall in manner of inflating footballs.

—(Goodyear Photo.)

NATIONWIDE ROUNDUP:

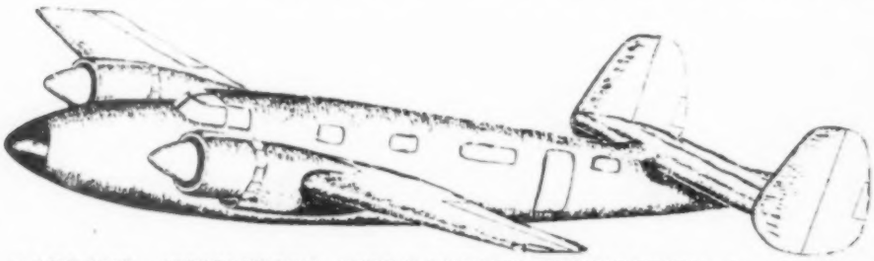
New Business In the Hangar

OAKLAND AIRMOTIVE CO., Oakland International Airport, has obtained a CAA supplemental type certificate for licensing a new "Centaurus" executive conversion of the Lockheed PV-2. It uses 2,000-hp. R-2800 engines and incorporates extensive modifications including streamlined nose with radome, contoured lower fuselage from nose to tail, new flaps with removal of bat wings, modified wingtips and redesigned ailerons, relocated collector rings with short stacks, relocated door and large picture windows, hot-wing anti-icing with Janitrol heaters and other improvements. Oakland Airmotive figures for it include 32,200-lb. gross, 18,700-lb. empty weight, 13,500-lb. useful load, 1,350-gal. fuel capacity, 75-gal. oil capacity, 32-gal. alcohol capacity, 8,815-lb. weight for fuel, oil and alcohol, 4,695 lbs. for people, baggage and equipment with full tanks, 328-mph. maximum speed at sea level, 280-mph. cruise speed on 55% power at 10,000 ft., 69-mph. stall speed gear and flaps down, 78-mph. stall speed gear and flaps up, 95-mph. minimum single-engine control speed (feathered), 106-mph. minimum single-engine control speed (windmilling), 2,000-fpm. rate of climb, 480-fpm. single-engine rate of climb, 3,790-ft. take-off distance to clear 50-ft. obstacle at gross weight, 74-ft. span, 54-ft. length, 16-ft. height, up to 14-place interior.

ADDISON AIRPORT, opened in Dallas last October exclusively for business and executive airplanes, recorded more than 5,000 landings and take-offs in March, more than doubling its activities in six months. Fuel sales have also doubled. Fifteen large multi-engine planes are based there and ten additional large multi-engine hangars are being added. The airport's own terminal omni (TVOR) has been temporarily approved for 24-hr. IFR operations and will be fully commissioned before May. Operators on the field now include Dal-Tex Aviation, Cessna sales and service; Rite-Way Airmotive; J. R. Gray, Beech sales; Collins Radio factory service; Delhi-Taylor Oil Co., executive aircraft fleet owner, and Associated Radio, executive radio and electronics service. W. T. Overton is president and Henry Stuart is manager.

TWO NEW FEDERAL AUTOPILOT DISTRIBUTORSHIPS are L. B. Smith Aircraft Corp. of Pennsylvania at Harrisburg and Southern Flight Service at Charlotte, appointed by B. V. Deltour, Federal autopilot sales manager, on a recent tour.

PACAERO ENGINEERING CORP., Santa Monica Airport, has Westing-



OAKLAND AIRMOTIVE'S "CENTAURUS" CONVERSION for Lockheed PV-2 features recontoured lower fuselage, new flaps without bat wings, modified wingtips and redesigned ailerons, relocated door and large picture windows, streamlined nose with radome, relocated collector rings with short stacks, Janitrol hot-wing heaters and other refinements.

—Oakland Airmotive Sketch.)

NEW LOW APPROACH INDICATOR by Marion Electrical Instrument Company has rectilinear display for localizer and glideslope for improved readability. Known as Model ID-525, it weighs only 24 ounces and has two Marion end-pivoted high-torque mechanisms for localizer and glideslope and two short-angle mechanisms for warning flags.

. . . for certified Beechcraft service

To obtain the best service for your Beechcraft and for prompt attention to maintenance and overhaul requirements, visit the Certified Beechcraft Service Stations listed.

AIRCRAFTSMEN, INC.
Will Rogers Field
Oklahoma City, Oklahoma

ALAMO AVIATION, INC.
Municipal Airport
San Antonio, Texas

ANDERSON AIR ACTIVITIES
General Mitchell Field, Milwaukee, Wisc.

ATLANTIC AVIATION CORP.
- Teterboro Airport
  Teterboro, New Jersey
- Logan International Airport
  East Boston, Massachusetts
- International Airport
  Philadelphia, Pennsylvania
- New Castle County Airport
  Wilmington, Delaware

BUTLER CO., AVIATION DIVISION
Midway Airport, Chicago, Ill.

CURREY SANDERS AIRCRAFT CO., INC.
Downtown Municipal Airport, Shreveport, La.

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport, Albuquerque, New Mexico

GRAY AIRCRAFT SVC. CO., INC.
D. A. Cody, Service Manager
Love Field, Dallas, Texas

GREENSBORO-HIGH POINT AIR SERVICE, INC.
Greensboro-High Point Airport
Greensboro, North Carolina

ELLIOTT FLYING SERVICE
Municipal Airport, Davenport, Iowa

LOPEZ GRACE AVIATION, INC.
Building No. 3 and No. 18
Broward County International Airport
Fort Lauderdale, Florida

THE NORMAN LARSON CO.
PLANESERVICE, INC. (Service Division)
Van Nuys Airport, Van Nuys, Calif.
(Los Angeles Area)

J. D. REED CO., INC.
Municipal Airport, Houston, Texas

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport, Indianapolis, Ind.

TEXAS AVIATION CORPORATION
G. K. Roberts, Pounds Field
Tyler, Texas

TOPEKA AIRCRAFT SALES & SERVICE
Municipal Airport, Topeka, Kansas

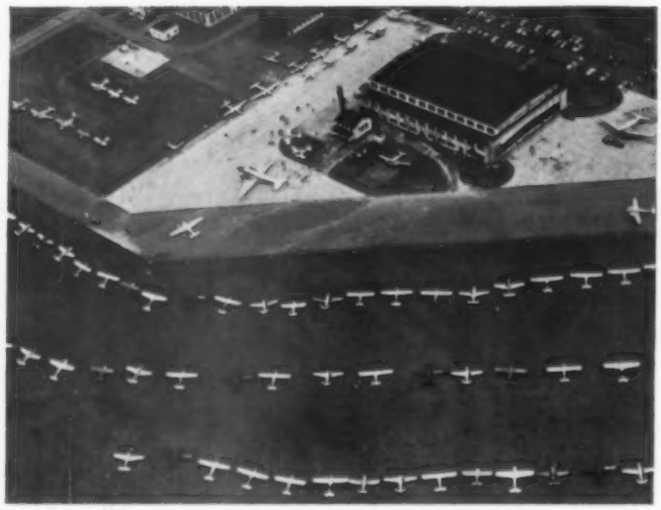
TRADEWIND AIRPORT CORP.
Tradewind Airport, Amarillo, Texas

TULSAIR DISTRIBUTORS, INC.
Hangar 8, Municipal Airport, Tulsa, Oklahoma

UNITED AIRPLANE SALES, INC.
New Municipal Airport
Wichita, Kansas

Put Your BEECHCRAFT in BEECHCRAFT Hands

TAKE A HEADING FOR *Reading*



Plan Now to Attend the

NINTH ANNUAL MAINTENANCE AND OPERATIONS MEETING

IT'S A TWO-DAY SHOW —

More Spectacular, More Informative Than Ever!

Friday, June 6 — Saturday, June 7

AT READING MUNICIPAL AIRPORT
READING, PA.

1958 PROGRAM FEATURES

- Aircraft and Industry Displays
- Talks, Round Tables and Discussions
- Glider, JATO and Other Flight Demonstrations
- Continuous Film Showings
- Antique Aircraft Exhibit
- Reading Aviation Awards, and selection of the FLAGSHIP OF THE U. S. BUSINESS FLEET

RAS INCORPORATED

It's the Nation's #1 Civil Aviation Show DON'T MISS IT

READING AVIATION SERVICE, INC.

Municipal Airport
Reading, Pa.
FRanklin 5-8551

house Electric's Lodestar for conversion to a Mark II Learstar, which will be the second Learstar for Westinghouse Curly Korb, chief pilot. . . . Miscellaneous work has been completed on Square D's Learstar Mark II for C. B. Dickinson, chief pilot, and Walter Michon, co-pilot. . . . Westinghouse Air Brake's Lodestar is in for dual engine change, short stacks, rudder spring tab system, electrical rewiring and other modifications. . . . Malco Refineries had Learstar tail and flap modification and miscellaneous work performed on their Lodestar, John Lyon, chief pilot, and Bob Adams, co-pilot. . . . Russ Miller brought in one of American Cyanamid's Learstars for autopilot work. . . . CAA flight testing has begun for transport category certification of a Convair 340 powered by two Napier-Eland turboprop engines and a Convair 440 is now in the process of conversion to the turbo-prop Elands. . . . PacAero's performance kit for Beech 18's is now under development and it is anticipated that flight tests on the prototype airplane will begin shortly. . . . A new PacAero Learstar demonstrator will be flying by mid-June.

DOT AIRTRONICS, Zahns Airport, Lindenhurst, N. Y., has installed a Dare Micro-Tune VHF system in one of Republic Aviation's first Alouette jet-powered helicopters, now being marketed in the U. S.

AIRESEARCH AVIATION SERVICE DIVISION of the Garrett Corp., Los Angeles International Airport, has compiled new figures showing how its Maximizer installation can reduce DC-3 operating costs by almost $20,000 a year. The widely-used Maximizer kit adds 20 mph. to DC-3 speeds with no additional horsepower. The AiResearch figures are based on airline-type utilization of 2,000 hrs. annually and specify a total of 235.2 hours saved in a year from improved take-off, climb, cruise and descent. A conservative operating cost of only $85 per hour is applied to this saving in time to obtain a total of $19,992 saved — this saving exceeding the Maximizer's complete costs as a DC-3 improvement. It is in use on DC-3's engaged in airline and commercial flying all over the world and provides improved engine cowling, engine baffling, oil cooler ducting, wheel well doors and exhaust system.

REMMERT-WERNER, Lambert Field, St. Louis, has delivered a newly converted DC-3 to Pillsbury Mills, Minneapolis, James Grogan, chief pilot. It has seat belts for 14 passengers and is equipped with Bendix X-band radar, Sperry A12 autopilot with extra Gyrosyn compass and H6 electrical horizon, Collins 800-channel Model 51X2-17L7 communications, dual Collins 51X2-344B omni system with dual RMI radio magnetic indicators and dual 51V glideslope receivers, dual ARC 21 lightweight ADF's, custom radio and instrument panel and lightweight landing gear doors. . . . Olin Mathieson's DC-3 had 55 lbs. of weight removed by installation of new carpet and special padding. . . . Jim Grogan brought in a Pillsbury Mills DC-3 for dual Sperry R-1 pictorial deviation indicators. . . . Lee Snow was in with his offshore Drilling DC-3 for installation of a trailing antenna and annual inspection.

WRIGHT AIRBORNE ELECTRONICS, Kansas City, is marketing a new Wright Airborne Custom Remote 90-channel transceiver covering the frequencies 118.0 to 127.0, each odd and even frequency being covered in 100-kc. steps. Gary Wright said the new unit retails for $1,295 complete with control head, power supply, shock mounts and antenna with no extra kits required.

HORTON & HORTON CUSTOM WORKS, Meacham Field, Ft. Worth, has delivered a custom converted PV-1 "Shooting Star" to Trade Ayer, Linden, N. J., complete with silver stars hand embroidered in the headlining in constellation designs, neon indirect lighting, lavish galley service, tape-recorded music, blue-tinted bubble windows, the longest pair of picture windows ever fabricated (no dimensions given) and blue sugar for the coffee (the airplane is going to an anonymous international celebrity). . . . The Fred J. Early, Jr., Construction Co., San Francisco, Barney Evart, chief pilot, has received a Gold Crest interior with sea-foam, turquoise and eggshell color scheme. Modifications included CAA-approved beef-up after aft bulkhead removal, folding cockpit doors and complete Formica galley. . . . Kilroy Oil's 680 Aero Commander has a new Gold Crest interior in pecan brown and green with the

owner's family coat of arms on an engraved crest. . . . Horton & Horton completed extensive modifications in the Braund Plywood Company Beech D-18 from Birmingham, Michigan, William Gunn, chief pilot. The palomino beige interior includes a 3-place "L"-shaped lounge, stair door and folding door.

TIMMINS AVIATION, LTD., Business Aviation Center, Montreal (Canada) Airport, has installed ARC 15D omni, ARC CD-1 Course Director and Dare 360-channel transceiver in Federal Equipment's new de Havilland Dove, Bill LeSauvage, pilot, and Dave Haines, co-pilot-engineer. . . . Ted Lawrence and Bell Vehey brought in Canada Packers' Lodestar for de-icing modifications, newly-modified cowl flap installation and inspection. . . . Captain John Weston and Co-pilot Dick Taylor were in with the Noranda Mines Lodestar for double engine change and 400-hr. inspection. . . . Two aircraft prepared for summer operations were Cominga Mines' PBY-5A, which received a Jato installation as well as relicensing, and World Wide's helicopter, painted for Alaskan service. . . . In for servicing were Inter-American Minerals' B-25 and Canadair's DC-3. . . . Timmins has

NEW BENDIX RANGE MEASURING UNIT is used with existing two-way voice radio and consists of an interrogator which emits a closely-controlled audio tone and a transponder which responds on the same carrier frequency with a tone-modulated signal identical in phase to the received signal. Phase difference at the interrogator shows on a read-out meter as distance units. Accuracy is 1 to 2 miles over 100-mi. range. Demonstrator unit weighs only 5 lbs., measures 7.1 by 6.5 by 10.4 ins. Indicator is shown above, transponder below. Both are basically same.

A guide for buying high altitude Aircraft Oxygen Equipment

The Scott OXYGEN CONSOLE

gives you

DOUBLE DURATION

You can fly twice as long with a Scott Oxygen Console as you can with an "automatic regulator" oxygen system. Prove it to yourself by comparing the duration tables of the various oxygen systems. Scott "Double Duration" gives you twice the safety from the same oxygen supply cylinder.

TAKE THE HIGH ROAD!

More pilots every day are installing oxygen equipment to enjoy the speed, economy, comfort and safety of high altitude flight. When you choose an oxygen system for your aircraft, consider them all. If you do, you'll choose a Scott Oxygen System. Scott offers the most complete line of business, executive airline and military oxygen equipment. You'll find Scott sales, service and recharging facilities are the world's most widely known and respected.

POSITIVE WORRY-FREE OPERATION

You'll be *sure* you're getting all the oxygen you require — no wondering "is it working?" With the Scott altitude gauge you *know* you're getting all the oxygen you need without skimping or without wasting your supply.

THERAPEUTIC OXYGEN AVAILABLE FROM EVERY OUTLET

When you're transporting medical patients or aged passengers, you'll appreciate the Scott System because *each outlet* can provide therapeutic flows... by just plugging in a Scott therapeutic mask connector. If you don't have a therapeutic plug-in you can adjust your regulator 5,000 ft. higher than actual flight altitude to obtain a richer flow.

CONTROL IN EMERGENCIES

With the Scott Oxygen System, you can temporarily "lean out" your oxygen flow to stretch your duration under emergency conditions. Perhaps you have to stay "on top" or go over a mountain at the very time you expected to be letting down. That's when you're glad you have a Scott *controllable* system.

Fill out the easy-to-use prepaid inquiry card in this magazine or write today for complete information!

SINCE 1932 Scott FOR SAFETY—FOR SERVICE

SCOTT AVIATION CORP.

235 ERIE STREET • LANCASTER, N. Y.

Export: Southern Oxygen Co., 250 W. 57th St., New York 19, N. Y.

NEW PIASECKI 59K DUCTED PROPELLER AERIAL JEEP is a wingless VTOL flat-bed with crew and dual engines carried between two shielded rotor-props. Piasecki Aircraft, Philadelphia, says the Army experimental craft was designed to operate close to obstacles such as trees and buildings at speeds up to 150 mph. It has small wheels for ground movement.

—(Piasecki Aircraft Photo.)

been named Exide Battery distributor for Eastern Canada and stocks a complete line for business and commercial operators.

DALLAS AERO SERVICE, Love Field, Dallas, has Art Lloyd's Otis Pressure Lodestar for radome and Bendix radar installation. . . . two more Convair 240's were relicensed for Dundel. . . . Don Wyrick, maintenance chief, was in with his Murphy Corp. Twin Beech from El Dorado for double engine change and other work. . . . Bill Savage brought in Federal Equipment's de Havilland Dove from Canada for double engine change, 1,000-hr. inspection, auxiliary tank and interior work. . . . Bill Rector's Whittle Construction Dove of Dallas is in for double engine change, annual inspection and interior work.

SOUTHWEST AIRMOTIVE, Love Field, Dallas, performed miscellaneous work on Paul Holst's Michigan Tool Lodestar. . . . Double engine changes included those for Tom Smith's Shamrock D18S Beech, Al Phillips' Ray Smith Lodestar and Jimmy Boyd's Shamrock Oil & Gas Lodestar. Others in for service include the Cummins Engine DC-3, Bill Pruner, pilot; Lockheed Aircraft's Lodestar, Les Hewitt, pilot, and W. D. McClain, mechanic, and Leo Scheberle's MPM Investment E50 Twin-Bonanza from Pueblo, Colorado.

READING AVIATION SERVICE, Reading, Pennsylvania, is completing plans for its 9th Annual Maintenance and Operations meeting to be held on June 6-7 at Reading Municipal Airport. About 750 planes and 3,000 persons are expected. This affair has become the leading show of the year in business and corporate aviation, featuring Reading Aviation Awards as recognition for high standards of excellence in aircraft maintenance and equipment. Accent this year will be on aircraft providing a maximum payload and high performance. Outstanding business planes in four classifications and four categories will receive plaques and trophies for (1) best equipped, (2) best exterior and

"JOHNNY-ON-THE-SPOT"

Ready, willing and able to meet the needs of the aviation industry—that's "Johnny-On-The-Spot," Air Associates' new trade figure.

Johnny is a visual representation of the alert, dependable service for which Air Associates is famous from coast to coast. He's your assurance that Air Associates' complete stock of parts and supplies—the most extensive in the industry—is always at your disposal, at prices made possible by volume purchasing.

AIR ASSOCIATES

A division of Electronic Communications, Inc.

Serving the Nation in Aviation

There are Air Associates branches at:

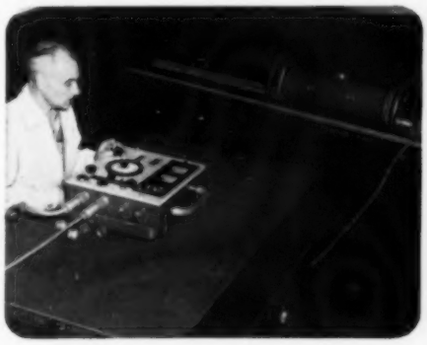
Atlanta, Ga.
Chicago, Ill.
Dallas, Tex.
Glendale, Calif.
Miami, Fla.
San Francisco, Calif.
Teterboro, N. J.

(3) best interior for single-engine class, twin-engine under 5,000-lb. gross, twin-engine grossing 5,000-12,000 lbs. and twin-engine over 12,000-lb. gross, topped by the most outstanding entry being selected as flagship of the U. S. industrial fleet. The judging is but part of the program, which will include authoritative discussions and talks on many topics of current interest to the pilot and aircraft owner. There will be many demonstrations including the new Aero Design Alti-Cruiser, first business plane with pressurized cabin and aircraft with Jato-assist take-off and engine-out performance. A wide range of aircraft radio and electronic devices, aircraft accessories and engines will be displayed by manufacturers. An increasing demand for display space has been met by allocation of the entire main hangar for this purpose. Exhibitors for whom booth space had been reserved late in March included Dare Radio, Lycoming, Air Associates, Schweizer Aircraft (sailplanes), Springer Aircraft Radio, Wilcox Radio, Associated Aviation Underwriters, Sensenich, McMillan, RCA, Aero Design, Gulf Oil, Esso Standard Oil, Bendix Radio, American Pamcor, Collins Radio, Atlantic Aviation, Lear Radio, General Aircraft Supply, Cessna Aircraft, Van Dusen Aircraft Supply, Tactair Autopilots, Republic Aviation, Central Aero Supply, Airwork, Reading Battery, Bell Helicopter, Skycraft Design, National Weather Forecasting and William C. Wold Associates. Sime Bertolet, RAS president, emphasizes that his program has won nationwide acceptance "primarily due to keeping out the carnival atmosphere and providing an audience comprised solely of those who are active in private or business flying." People in aviation everywhere who are interested in an outstanding seminar and display of equipment should "take a heading for Reading" to attend the RAS event June 6-7. It is worth a transcontinental junket to be there and participate.

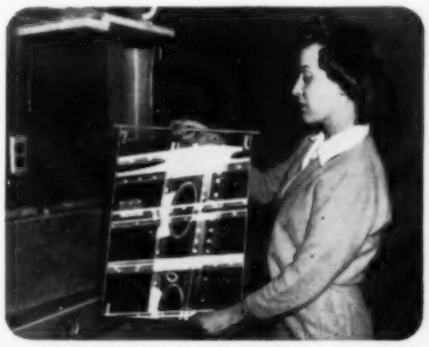
SANTA MONICA AVIATION, Santa Monica Municipal Airport, is marketing a complete "flush antenna system" for all models of Aero Commanders. The system includes two omni antennas, two broadbanded communications antennas, two new wingtips with flush navigation lights and a new vertical fin cap with rotating beacon provisions. The system has CAA STC approval and complete installation diagrams and prints are furnished with each kit. Jack Baumann, general manager of Santa Monica Aviation, western distributors for Aero Commanders, says the main advantages of his flush antenna systems are less drag, cleaner airplanes, improved omni and communications performance and no danger of losing antennas in icing conditions.

EXECUTIVE AIRCRAFT SERVICE. Red Bird Airport, Dallas, has delivered one of its new Lodestar con-

RAWDON T-1 AGRICULTURAL AIRPLANE is being produced and marketed by Rawdon Bros. Aircraft, Inc., Wichita, Kansas. Available with 150 or 180-hp. Lycoming engine, all-metal low-wing has 1,250-lb. useful load and fiber glass hopper-tank.

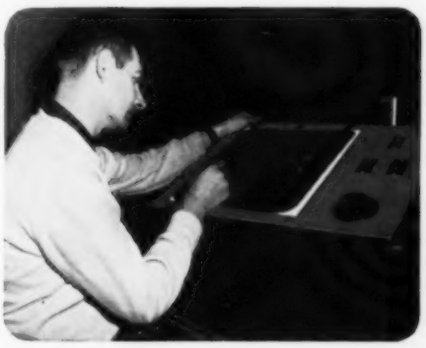


supplement your annual inspection with a complete x-ray diagnosis by Aero



At annual inspection time, go all the way. Insist on a complete X-ray diagnosis to reveal hidden defects.

At Aero, technicians take the X-rays, develop them, carefully study each section — then relay the information to skilled mechanics. A thorough job is done in one operation with complete shop facilities at Aero Corporation.



SPECIALIZED SERVICES

Engineering
X-Ray
Modification
Electronics
Overhaul
Hydraulics
Maintenance
Interiors
Line Service
Painting
Helicopter
Engine Overhaul

AERO CORPORATION

ATLANTA AIRPORT • POplar 1-7721 • ATLANTA, GEORGIA

BEECH TRAVEL AIR SMALL TWINS are now going to business users in growing numbers after first 40 went to distributor-dealers to start production rolling. First user to receive the new 200-mph. 4-place twin was Lundell Manufacturing Co., Cherokee, Iowa. Vernon Lundell (right) accepted it from Don Duncan (left) of Lang Aircraft, Omaha, and Cliff Lindlief of Graham Flying Service, Sioux City.

—(Beech Photo.)

versions to Wilshire Oil Company, Los Angeles. . . . Chief Pilot John Lyon brought in his Malco Refinery Lodestar for 8,000-hr. overhaul, new electrical system, new interior, picture windows, enlarged cockpit, radio and autopilot installations, Bendix X-band radar and other work. . . . Dow Chemical's DC-3 from Midland, Michigan, Russell Purchase, pilot, was in for annual inspection, interior modifications, dual ARC ADF's and miscellaneous work. . . . Dick Carleton is in with his International Petroleum DC-3 from Colombia, South America, for overhaul, engine change and radio installation. . . . Stein Lee's Gulf Oil Lodestar from Ft. Worth has been equipped with a rudder spring tab.

AERO CORPORATION OF ATLANTA, Atlanta Municipal Airport, has the Rahr Malt Twin Beech from Kenosha, Wisconsin, for miscellaneous

PERFECT READABILITY for lighted aircraft instruments has been attained by a new Sperry system of lighting from within for controlled brightness ratios in daylight, twilight, night and instrument flight. Indicators glow in aviation red.

—(Sperry Photo.)

electronics. . . . X-ray inspections were performed on the Columbia Gas Lodestar, White Plains, N. Y., and Burton Industries' Twin Beech from Laurel, Mississippi. . . . The Patuxent Motors Riley Twin was in for overhaul, nose rebuild and other repairs.

SUDDENLY IT'S Spring

...and now is the time to put your airplane in "spring" condition with United installed accessories and service improvements.

Distributors for: ARC — COLLINS — CONTINENTAL
DARE — LEAR — LYCOMING — SUNAIR — TACTAIR

UNITED Beechcraft DISTRIBUTOR
AIRPLANE SALES, INC.

Wichita is nearer than you may think. With its central location and outstanding airport facilities there is every reason to give your equipment the finest UNITED GUARANTEED SERVICE.

MUNICIPAL AIRPORT / PHONE WHitehall 2-3261 / WICHITA, KANSAS

AIR-TAXI SERVICE AVAILABLE TO YOUR JOB SITES

NEW KAMAN HUK-1 utility copter for Navy service aboard ships and at shore bases have improvements over predecessor HOK-1's used by the Marines. New version has more communication-navigation equipment, high-speed 3-man rescue hoist, flood lights and in-flight tracking device for rotor adjustments.
—(Kaman Aircraft Photo.)

. . . Tony Zuma was a visitor in a Tennessee Gas Beech Super 18. . . . The Army has extended its Aero Corp. contract for overhaul of Franklin engines for helicopters. . . . A facility inspection was made by an Army delegation composed of Major General Frank S. Besson, Jr., of Washington, Brig. Gen. William B. Bunker, Colonel J. Lane and Colonel Ford Alcorn from St. Louis.

FOURTEEN RIDDLE AIRLINES C-46R T-category versions of the Curtiss C-46 have been licensed during the past year. Delta Air Lines has 5, Riddle 4, Fred Olsen Transport of Norway 3 and L & J Trading has 2. In addition, Riddle is licensing four more; American Airmotive is working on three conversions as the Western Hemisphere licensee, and another

PIONEER COPTER PILOT FLOYD CARLSON, chief pilot of Bell Helicopter Corp., used the 12th anniversary of the first CAA helicopter certification as an opportunity to dig out an old photo showing him in tethered flight in a vintage Bell before the historic licensing on March 8, 1946. Bells have since logged over 2,500,000 hrs. of operation all over the world.
—(Bell Helicopter Photo.)

Cessna 170 and 172 owners . . .

increase your cruising speed 5 MPH plus!

SIMPLY by changing to a new Sensenich Model M74DR metal propeller you can increase the cruising speed of your Cessna 170 or 172 at least 5 miles per hour *without* sacrificing rate of climb! The thoroughly tested and C.A.A. approved Model M74DR weighs 3 pounds *less* yet has a higher endurance factor, the result of a new Sensenich-designed airfoil section. A shorter diameter provides greater ground clearance and lower tip speeds that reduce noise and increase service life.

Get maximum performance efficiency and economy of operation—replace with a Sensenich Model M74DR Metal Propeller. It can be used with your present spinner. If you own a Cessna 170 or 172 you owe it to yourself to get all the facts on this new propeller for your plane. Write, wire or phone for details.

SENSENICH CORPORATION • Dept. T, Lancaster, Pennsylvania

Sensenich Propellers

Sensenich PROP SHOP . . . Certified Repair Station for all makes fixed pitch metal or wood propellers . . . Sensenich, Beech and Hartzell controllables. Magnaflux, etching, anodizing and plating service available. Service Hangar on Lancaster Municipal Airport. Approved Propeller Repair Station 3528. Unlimited Class 1 and 2 ratings. Phone: Lancaster LOwell 9-0435

AN EDO-EQUIPPED SEAPLANE GIVES YOU FAST, SAFE, ECONOMICAL TRANSPORTATION

Hundreds of airplanes, equipped for water flying with Edo seaplane floats, provide fast, safe, economical transportation to oil rigs from downtown locations—making trips in minutes that would require hours by car and boat.

If your company is involved in sales or service to coastal oil drilling operations, a seaplane can easily prove to be the most economical transportation possible, greatly multiplying productive man-hours, providing better service to your customers.

Edo floats are easily installed on the Cessna 175, 180, Piper Tri-Pacer and Super Cub. For details and Edo float brochure, write Dept. L-3.

Edo SINCE 1925 CORPORATION
College Point, Long Island, New York

FLY CENTRAL AIRLINES

. . . to over 30 cities in six states with connections to cities throughout the nation.

Anywhere you go in Texas, Oklahoma, Arkansas, Kansas, Colorado and Missouri, Central Airlines will be happy to help you bank your time for future use.

You will earn extra dividends in pleasure and economy when you use Central Airlines' FAMILY PLAN . . . the whole family can fly with you . . . at reasonable cost Monday noon through Thursday noon.

For confirmed reservations call:

CENTRAL AIRLINES

OKLAHOMA • TEXAS • ARKANSAS
KANSAS • MISSOURI • COLORADO

CESSNA DISTRIBUTOR ADVISORY COMMITTEE and factory officials were photographed at recent meeting in Wichita. Seated (left to right) are Del Roskam and Frank Martin of the factory and Jack Scholefield of Laurentide Aviation, Montreal. Standing (left to right) are John Wilson, Mid-States Aviation, Chicago; John Lynch, Lynch Flying Service, Billings, Montana, and Ernest Helms, Skyways, Inc., Portland, Oregon. A dealer committee also works with the factory.

—(Cessna Photo.)

conversion is underway under Airmotive control.

PIEDMONT AVIATION, Winston-Salem, N. C., had R. J. Reynolds' Beech E18S in for installation of radar and miscellaneous repairs and performed an inspection on the RJR DC-3, Herb Drew, chief pilot. . . . Chrysler Corporation's DC-3 was in for 4,000-hr. inspection, short stacks, Miner speed cowling and complete heater rework. . . . CAA brought in two DC-3's for heater modifications. . . . Floyd Graham's Carrier Corp.

BOSTON · NEW YORK · PHILADELPHIA · WILMINGTON · LYNCHBURG

NEED AIRCRAFT PARTS? *ANY KIND?*

We have hundreds of thousands of them for everything from Piper to Lockheed and Douglas . . . and we can get them off to you in minutes. What we don't have we can get in a hurry. Five inventories (major departments at Teterboro and Wilmington) at your service, and a streamlined, efficient system that really gets things done.

AIRCRAFT RADIO, NAVIGATION AND FLIGHT CONTROL EQUIPMENT
- ARC
- Bendix
- Collins
- Dayton Aviation
- Federal Telephone & Radio Co.
- Flite-Tronics
- Lear
- NARCO
- RCA
- Sperry
- Wilcox
- Tactair

AIRCRAFT ENGINE, PARTS AND ACCESSORIES
- Airwork
- Continental
- Lycoming

AIRCRAFT
- Beech
- Piper

OTHER
- AiResearch
- Delco Remy
- Exide
- Goodyear
- Reading
- Flitetex
- Grimes
- Zep Aero
- Sensenich
- Titanine
- Spencer Thermostat
- U.S. Rubber Co.
- Flex-O-Tube
- B. F. Goodrich
- A/C Spark Plugs
- PAC Aero

Maine to Virginia . . . only a short hop to Atlantic Aviation

Atlantic Aviation CORPORATION

BOSTON	NEW YORK	PHILADELPHIA	WILMINGTON	LYNCHBURG
international Airport	Teterboro Airport, N. J.	International Airport	New Castle County Airport	Preston Glenn Airport
LOgan 7-8700	ATlas 8-1740	SAratoga 6-7500	EAst 8-6611	LYnchburg 3-3134

DC-3 was in for engine change. . . . Leo Boyd's Tennessee Eastman DC-3 received installation of the Challenger aileron gap closure, wing fillets, alcohol system, double-filament landing lights and inspection. . . . Long Manufacturing's Aero Commander, flown by Steve Donegan, was in for engine repairs and radio work. . . . S & W Motor Lines had their D18S Beech in for engine change and repairs. . . . L. A. Marsden, High Point, N. C., brought in his new J Bonanza for Tactair autopilot installation.

L. B. SMITH AIRCRAFT CORPORATION, International Airport, Miami, reports following: Toni Company Lodestar, Des Plaines, Illinois, paint and interior alterations; Consolidated Purchasing's Aero Commander from San Francisco, double engine change and 1,000-hr. inspection; Associated Air Transport, Washington, Curtiss C-46 conversion to Smith Super 46-C; Magnovox Corp's DC-3 from Ft. Wayne, Indiana, interior refurbishing; Dominicana de Aviacion, Dominican Republic, DC-4 paint and interior work; Minnesota Airmotive, Minneapolis, flight test work and inspection of Super Lodestar conversion for purpose of 4B certification; Jack Southerland, West Palm Beach, Aero Commander control surface modifications and repairs; Thatcher Glass Lockheed PV-1, Elmira, N. Y., radio and radar modifications; Square D Learstar, Milwaukee, 100-hr. and relicense.

BIG or SMALL

they all SHINE BEST

SHINE LONGER

SHINE EASIER with

NEVR-DULL

Aluminum Cleaner and Polish

The original chemically-impregnated cotton wadding — Cleans quicker, gives higher, longer-lasting gloss, leaves protective film. Saves time, labor and money! Avoid inferior imitations.

AVAILABLE AT LEADING DISTRIBUTORS

MANUFACTURED EXCLUSIVELY BY

George BASCH Co.

19 Hanse Avenue, Freeport, L. I., N. Y.

Come Eye and Fly the New

MOONEY Mark 20-A

180 hp.

The Greatest Value in 1958

For demonstration ride see "ALABAM"

Distributors for MOONEY in state of Arizona

POWERS AVIATION COMPANY

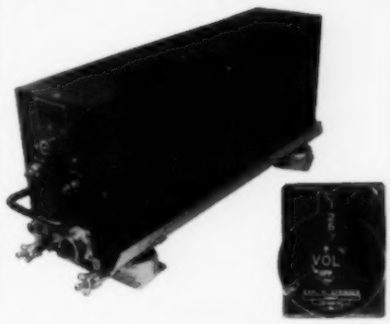
Airhaven Airport

3202 Grand Avenue

Phoenix, Arizona

Telephone: CRestwood 4-4144

$1785.00



180 CHANNEL VHF TRANSCEIVER

118.0 to 135.9 MC

- All Accessories, Crystals, Antenna and Connectors furnished wired and assembled ready to install.
- Installed weight only 23 lbs.
- Transmitter power an honest 5 watts radio output.
- Size is standard ½ ATR.
- Remote Control Head is Airline concentric type.

SPRINGER AIRCRAFT RADIO CORP.

Sky Harbor Airport

Route 11, Box 330

Indianapolis 19 Indiana

Yes - "PRECISION" has A FULL HOUSE

Everything from the Firewall Forward

Aircraft Engines

Aircraft Propellers

Aircraft Accessories

Kustomer Sales

Kustomer Service

Precision Aeromotive Corporation

International Airport Houston, Texas Phone Mission 5-6636

Specializing in Radio Overhaul, Service and Parts . . . When TIME is IMPORTANT . . . and DEPENDABILITY ESSENTIAL . . .

FLORIDA AIRCRAFT RADIO & MARINE, INC.

- ★ New and Surplus Equipment . . . Large Stock of Spare and Replacement Parts
- ★ State Dept. Export-Import Permit No. 3108
- ★ CAA Approved Repair Station No. 3653. Class 1 and 2, Class 3 Limited

Florida Aircraft Radio & Marine, Inc.

5365 N. W. 36th Street, Miami Springs, Florida

Phone TUxedo 8-4614 Wm. C. Rogers, President

Ideal Gift For THE MAN IN AVIATION

Miniature WHIRLWIND ENGINE Cuff Links and Tie Bar

Only $6.50 per set, tax included

Delight the man who has everything, with a Precision Molded Replica of a famous radial aircraft engine and propeller.

NON-TARNISHING RHODIUM (SILVER) FINISH

The Varsity Shop Ship post paid ____ Sets

6319 Hillcrest $____

Dallas 5, Texas

NAME ____

ADDRESS ____

CITY ____ ZONE ____ STATE ____

(Enclosed Cash ____ Check ____ Money Order ____)

WHAT ?? — WHERE — HOW MUCH $

IFR HOOD

First in Safety! First in Comfort!
First in Pilot's Choice
The modern method of simulated instrument flight for training and maintaining proficiency.
$15.00 at your Airport or
FRANCIS AVIATION
Box 299 Lansing, Michigan

TEN YEARS OF AVIATION ADVANCEMENT
TAA
TUCSON AIRPORT AUTHORITY

NAVCO Inc.
Lambert Field
St. Louis, Mo.
PErshing 1-17[illegible]

$1,000,000 in Active Parts for Executive Aircraft

Douglas	Airframe Parts	Pratt & Whitney
Beechcraft	Engine Parts	Continental
Lockheed	Standard Parts	Wright
A.R.C.	Sperry	Accessories
Bendix	R.C.A.	Instruments
Collins	Wilcox	De-icers, Tires

AIREX Service

REPOSSESSIONS

SAVE ON COMMANDERS, 310'S, BEECHES, ETC.

Good buys,
or you just assume payments

AIRCRAFT FINANCE, INC.

Phone EM 6-5509 Box 5306
Denver 17, Colo.

Pompano Beach Airport

Quickest, Easiest Access to all points between Palm Beach-Miami

Complete Business Aircraft Services

No Landing Fees — 24 Hr. Line Service
No Traffic — 80-91-100 Octane

Four 4000' x 150' hard surface runways
122.8 Unicom — Night Lighting

On the Airport

Golf—18 hole course
Clubhouse, lounge
Restaurant
Swimming Pool
Showers and lockers
Car rental

Next to Airport

Excellent accommodations
Hillsboro Lighthouse
Deep sea fishing
Yacht Basins
Ocean Beaches
Amphibian charter

50 beautiful mechanics
All facilities for airframe, engine, radio, electronic maintenance, conversion, overhaul

by
Remmert-Werner
of Florida, Inc.

THE PLACE TO STOP
RALEIGH-DURHAM
N. C.

Executive Transport Aircraft

All Models — New and Used
We can save you time and money
Sales — Procurement — Trades
Leases — Finances

Welsch Aviation Company
60 East 42nd Street, Suite 729
New York 17, New York, MUrray Hill 7-5884

NON-BREAKABLE
TETRALITE*
SPARK PLUG TERMINAL SLEEVES
FOR THREADED OR STANDARD LEADS
J. E. MENAUGH COMPANY
549 WASHINGTON BLVD., CHICAGO 6, ILL.

CAA APPROVED

WE BUY TWINS

CASH NOT CONVERSATION

THERE IS A DIFFERENCE!

One or complete dealer stocks, new or used. We'll buy over the phone. No Red Tape. We pick up. Send for our free list of buys.

VEST AIRCRAFT CO.
Box 5306
EM 6-2663 Denver, Colo.

Immediate Delivery
We stock, overhaul, and install

PRATT & WHITNEY	WRIGHT
R1830	**R1820**
—75, —92, —94	—202, —56, —72
R985	**R1340**

Lycoming — Continental
and our most popular DC-3 engine
Super-92
ENGINE WORKS
Lambert Field INC. St. Louis, Mo.

TWO MODEL C50 TWIN BONANZAS
Identically equipped. Dual instrumentation, custom radio panel, Collins 360 channel communications, Collins and ARC Omnis, ARC Type 21 ADF, standby 5 channel transmitter, glideslope receiver, ISO Amp., etc. Low engine times. Available for $46,000.00 and $47,000.00. EXCELLENT CONDITION. Box 750W, FLIGHT MAGAZINE, DALLAS 21, TEXAS.

POSITION WANTED
"A&E Mechanic, 8 years' experience heavy and light equipment, Private SEL 450 hrs., desires maintenance position with company operating executive aircraft, Dallas, Texas area. **Gill, 3071 Norwalk Dr., Dallas, Texas, FL 1-3850.**"

WONDERING WHERE TO BUY IT?
Aircraft—Parts—Services—Supplies
YOU'LL FIND IT IN AVIATION'S BUYING BIBLE
A B D **Published Quarterly**
For your copy write A B D
342 Madison Ave., New York 17, N. Y.

THE PLACE TO STOP IN MINNESOTA

Otis Lodge

Luxury in the wilderness on a blue water lake with walleyes, northern, bass and pan fish. Beautiful 9-hole golf course. On your Duluth sectional. 80 and 91 octane, hangar, beacon, Unicom 122.8, Hertz cars. Write for brochure. Mr. and Mrs. Arthur R. Otis, Grand Rapids, Minnesota.

Order Card

Subscription

Order Card

Subscription

Order Card

Executive Aircraft for Immediate Delivery

See them at

Pompano Beach Airport

— by Hillsboro Lighthouse, Florida

Super E-18 Beechcraft — Traded in by original owner on new deluxe executive DC-3. Dual Collins 51R3 omni with Bendix Omni Mag., Collins 17L4-51R3 VHF communications, Collins 51V glideslope, Sperry C4 Gyrosyn compass and H5 electric gyro horizon, dual ADF, standby VHF, A.R.C. F-11 isolation amplification, de-icers, 90,000 BTU heater, divan, 3 seats, snack bar, etc.

Deluxe Super-92 DC-3 — New ship guarantee on airframe, 800 hour guarantee on engines. Completely disassembled and rebuilt. Luxurious interior, with all large cabin and picture windows. Lightweight landing gear doors, Collins and Bendix executive radio, many extras. Today's fastest and quietest DC-3, 210 miles per hour.

Grumman Goose — New three bladed full feathering props, all metal wing, new relicense with fresh overhaul on airframe and engines (with crankshaft modification). New executive interior, new exterior paint. Another Goose also available, now beginning overhaul, ready for your specifications.

Custom 18 — New ship guarantee on freshly overhauled airframe, 800 hour guarantee on engines. Painted exterior, de-icers, radome, large cabin windows, enlarged interior, modified front bulkhead, lavatory, snack bar, special seats. Dual instrumentation, autopilot, Sperry H5 horizon and C2 Gyrosyn compass, Collins 51R omni with 51V glideslope, isolation amplifier, dual speakers, many extras.

Aero Commander — Three bladed Hartzell props, full feathering. Oxygen, dual instrumentation, custom panels. Collins 17L-51R VHF omni with RMI, Sperry C2 Gyrosyn compass and H5 electric gyro horizon, A.R.C. 15 omni and T11 standby, Bendix ADF, 3 light marker, standby VHF, isolation amplifier, etc. $44,500. Also available for $39,500 with less radio, if desired. Excellent condition.

Airline DC-3 — 26 seat, ready to go. Janitrol heat, dual instrumentation, dual Collins 51R omni, dual ILS, dual ADF, dual VHF transceivers, 3 light marker, isolation amplifier, etc. $110,000.

Twin Beechcraft — C18, new relicense, Hamilton Standard full feathering hydromatic props, metal flaps and ailerons, oleo drag legs, nose tank, complete paint, dual instrumentation, Collins 17L3-51R omni, 51V2 glideslope, Sperry electric gyro horizon, autopilot, A.R.C. T11-R15 standby VHF, VTR omni-transceiver, ADF, etc. Excellent condition, $19,500. Also available with less radio for lower price, if desired.

Low Time C-47's — A new one each month. They are now in various stages of disassembly, overhaul, and conversion at our four conversion centers in St. Louis, Toledo, McBride, and Pompano, and can be completed with many of your own modifications, with choice of engines, radio and electronic equipment, and airframe refinement. On display in St. Louis, Toledo, and Pompano Beach.

Visit our new Pompano Beach hangar

No Landing Fee **No Traffic**

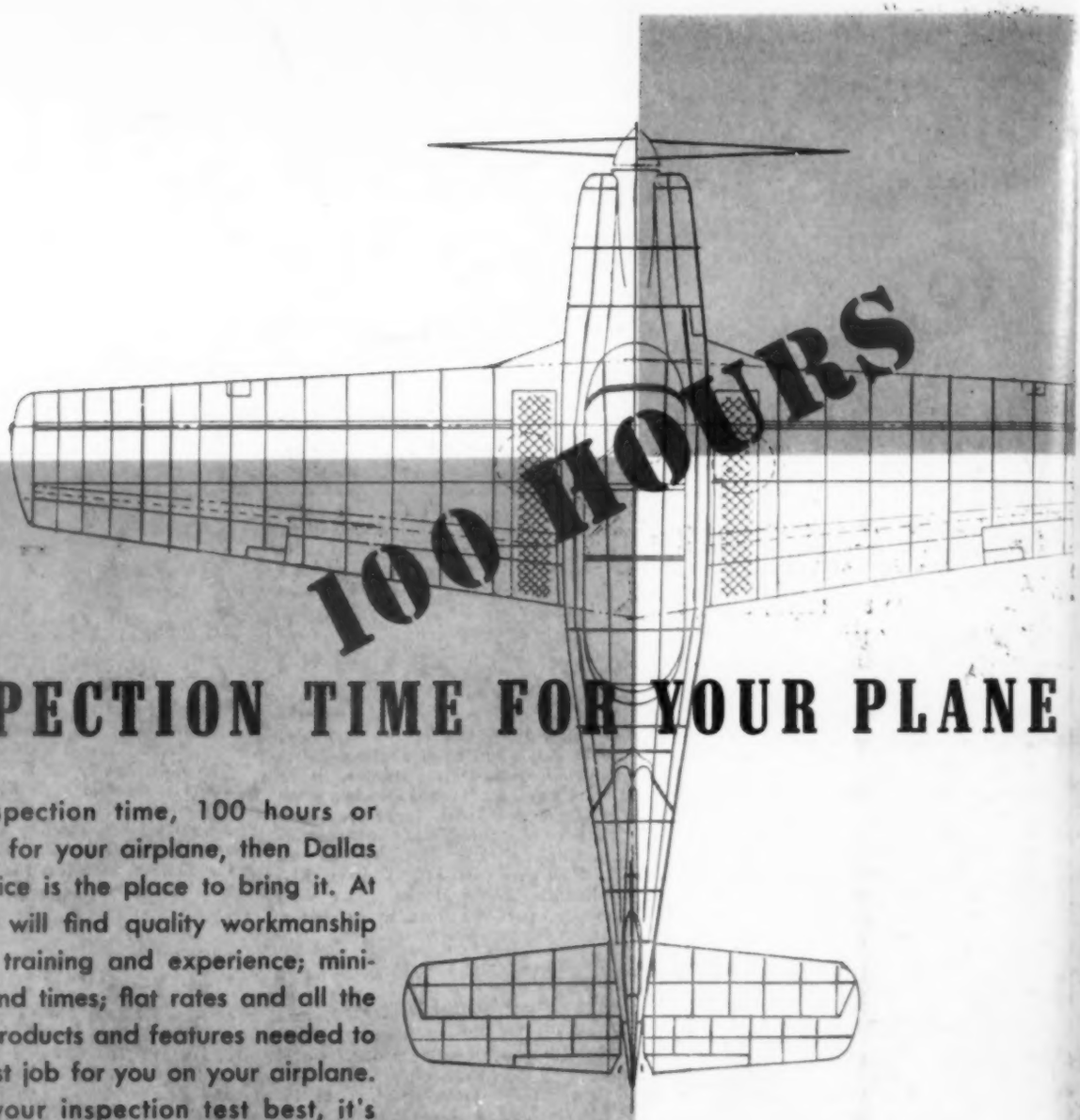
— furnishing full maintenance, conversion, inspection and overhauls for private business operated DC3-C47, Lodestar, and D18S, with complete installation and service of radar, radio, autopilots, electronics, etc. 24 hour line service, Shell 80, 91 and 100 octane gasoline. Extensive recreational facilities on and next to airport — swimming, fishing, golfing, boating, restaurant, showers, etc.

Remmert-Werner

Inc. of **St. Louis** Lambert Field

Inc. of **Florida** Pompano Beach

Inc. of **Toledo** Express Airport



INSPECTION TIME FOR YOUR PLANE

If it's inspection time, 100 hours or otherwise, for your airplane, then Dallas Aero Service is the place to bring it. At DAS, you will find quality workmanship based on training and experience; minimum ground times; flat rates and all the services, products and features needed to do the best job for you on your airplane. To pass your inspection test best, it's Dallas Aero Service.

INSPECTION PLACE

DALLAS AERO SERVICE

3300 LOVE FIELD DRIVE • PHONE FL 2-2641 • DALLAS 35, TEXAS

COMPLETE ONE-STOP SERVICE ON CONVENIENT LOVE FIELD